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The Link Between Economic Restructuring, Economic Deprivation, and Serious Crime in American Cities, 1970-1990.

Graham Christopher Ousey
Louisiana State University and Agricultural & Mechanical College

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THE LINK BETWEEN ECONOMIC RESTRUCTURING, ECONOMIC DEPRIVATION, AND SERIOUS CRIME IN AMERICAN CITIES, 1970-1990

A Dissertation

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in

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Graham C. Ousey
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M.A., College of William and Mary, 1993
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This dissertation postulates that the economic transition from manufacturing to service employment is a major factor leading to high rates of economic deprivation and crime in major U.S. cities. By integrating theory and research from several substantive areas of sociology, I extend macro-level research in criminology and develop a social organization/social control explanation of city crime rates. I use both cross-sectional and longitudinal regression methods to investigate the direct and indirect effects of a city's industrial structure on race-disaggregated rates of homicide, robbery, and burglary.

Based upon data from 113 major cities in the United States, I compute a series of structural equation models to estimate the direct and indirect effects of the relative size of the manufacturing sector on race-specific indicators of economic deprivation and rates of crime. I begin the research with an analysis of the proposed theoretical model using cross-sectional data for 1990. Then, I incorporate the dynamic nature of the restructuring process by investigating whether 1970 to 1990 change in a city's industrial structure is associated with change in measures of economic deprivation and rates of homicide, robbery and burglary.

Both the cross-sectional and longitudinal analyses offer substantial support for the proposed theoretical model. Specifically, the results indicate that a decline in the relative size of the manufacturing sector increased rates of crime indirectly, by first increasing rates of poverty, joblessness, and income inequality. In addition, the findings from this study suggest that, contrary to expectations, the impact of economic

restructuring has been experienced rather evenly by blacks and whites. The loss of manufacturing employment has similarly raised economic deprivation and serious crime among both race-groups. I conclude that by increasing levels of economic hardship and rates of criminal offending, economic restructuring has been a critical factor reducing the economic and social well-being of residents in major cities of the United States.

CHAPTER 1

INTRODUCTION

1.1 Crime in Urban Communities

Concern for the rate of serious crime in American cities has reached nearly unprecedented levels in recent years. And this concern is not completely unfounded. While violent crime rates have declined slightly in the past few years, crime rates in major U.S. cities are still remarkably high. This is especially true in ghetto communities where homicide is now the leading cause of death for black males aged 15-34 (U.S. Department of Justice 1995). Moreover, concomitant with the high rates of violent victimization among blacks is an extremely high rate of criminal offending. For instance, while blacks comprise only 12% of the total U.S. population (U.S. Bureau of the Census 1994), they account for more than 50% of all arrests for robbery and homicide and roughly one-third of arrests for property crime (U.S. Department of Justice, 1992).

While public recognition of the crime problem in black ghetto communities has risen in recent years, few academic studies of crime have investigated the structural predictors of race-specific crime rates. Rather, researchers generally have studied crime trends among the total population, which is problematic because it glosses over important race differences in the factors related to crime rates. This limitation is particular surprising given that the residential segregation (Massey 1990; Massey and Denton 1993), and social dislocations that characterize black ghetto communities make them qualitatively distinct from white communities. Given the extreme differences in

living conditions in black and white communities, it is naive to assume a priori that the correlates of crime are identical in black and white communities.

Historically, criminologists who study the macro-structural predictors of crime have pointed to the importance of factors such as poverty (Shaw and McKay 1942; Patterson 1991), income inequality (Blau and Blau 1982), and unemployment (Allan and Steffensmeier 1989). But, despite the contributions of many of these studies, most are limited in several respects. First, as noted above, many of these studies have not analyzed the economic correlates of crime using race-disaggregated data (e.g., Blau and Blau 1982; Williams 1984). Second, most of the previous research addressing the economic deprivation-crime relationship has relied solely on cross-sectional data for 1980 or earlier (Blau and Blau 1982; Allan Steffensmeier 1989; Harer and Steffensmeier 1992; Shihadeh and Steffensmeier 1994; Shihadeh and Ousey 1996; Sampson 1987). Therefore, these studies have not specifically investigated the relationship between change in economic conditions and change in crime rates. Finally, very few studies have attempted to link economic deprivation and crime to other important social forces affecting the United States. For example, research in the areas of stratification (Nelson and Laurence 1985; Noyelle 1987) and urban sociology (Kasarda 1985; Wilson 1987) has suggested that a structural transformation in the economy taking place over the previous several decades is responsible for increased rates of social dislocation (e.g., poverty, joblessness, welfare dependence) in urban communities. Thus, there is reason to believe changes in crime rates may be a

reflection of this structural transformation of the economy occurring primarily since the late 1960s.

1.2 Economic Restructuring

After World War II and through the 1960's, the United States, along with other advanced capitalist nations, enjoyed a period of rapid economic growth (Margolin and Schor 1990). During this time, manufacturing industries were flourishing and internal labor markets (i.e., intra-firm job ladders) common to blue-collar industries provided avenues of upward mobility for workers with relatively low levels of education or skill (Margolin and Schor 1990; Noyelle 1987). Consequently, labor market prospects were generally good for most Americans, evidenced by low levels of unemployment, economic inequality, and a general expansion in health care services and educational programs (Hagan 1994).

However, since the early 1970's, structural economic changes have altered the American labor market. The rise of high technologies in conjunction with global competition for manufacturing, has produced a "new economy" in the United States (Noyelle 1987). While manufacturing industries were the nation's major employers in previous years, the service industries have rapidly taken their place (Kodras and Padavic 1993). For example, between 1970 and 1984, nearly all (95 percent) of the net new jobs added to the U.S. economy were in the service industries (Noyelle 1987, p.9). Moreover, by 1980 two-thirds of all jobs were in the service industries (Kodras and Padavic 1993).

This structural transition has had major ramifications for low-skill workers in general, and low-skill blacks in center city communities in particular. Center-city blacks have been vulnerable for two major reasons. First, according to queue theory, institutional discrimination places blacks at the bottom of the labor queue, making them the first fired when an industry contracts and the last hired during industrial expansion. Consequently, as manufacturing industries have begun to downsize and close, jobs held by blacks have been cut faster than those held by whites (See Bound and Freeman 1990; Howell 1991). Second, while blacks have improved their overall educational attainment in recent decades, large segments of the urban black population still do not have the educational credentials to compete for jobs in the growing high-technology industries (Kasarda 1989). As a result, low-skilled blacks are forced to compete for jobs in low-order service industries (e.g., food services), which provide low-pay, few benefits, and lack the stability of higher-order occupations (Andrisani 1973; Bosanquet and Doeringer 1973; Kaufman 1986; Pomer 1986).

A main outcome of the poor labor market prospects created by economic restructuring has been what William Wilson (1987) terms *concentration effects*. According to Wilson (1987), "the social transformation of the inner city has resulted in a disproportionate concentration of the most disadvantaged segments of the urban black population, creating a social milieu significantly different from the environment that existed in these communities several decades ago" (p. 58). Thus, post-transition center-city black ghettos now feature unprecedented rates of social dislocation such as

poverty, welfare-dependence, out-of-wedlock births, chronic unemployment and violent crime.

As the preceding paragraphs indicate, the literature suggests that economic outcomes can be linked to a restructuring of the American economy over the past several decades. In addition, researchers in criminology have demonstrated an empirical link between crime and the economic outcomes partially attributable to economic restructuring. Thus, to the extent that these two social processes overlap, the rates of serious crime in center city communities should be affected by urban economic restructuring. However, few researchers, if any, have empirically examined this relationship, leaving a substantial gap in the sociological literature.

To address this gap, I investigate the link between the changes in the urban industrial structure, socioeconomic deprivation, and race-disaggregated crime rates in U.S. cities between 1970 and 1990. First, I examine the direct and indirect cross-sectional relationship between the industrial structure and race-disaggregated rates of crime for major U.S. cities in 1990. I then model the dynamic nature of industrial restructuring by investigating whether industrial structure changes occurring between 1970 and 1990 are associated with changes in economic deprivation and homicide, robbery and burglary arrest rates during the same period. I finish with a summary of major findings, a discussion of conclusions, and a number of suggestions for extending the research presented in this project.

CHAPTER 2

LITERATURE REVIEW

In the following pages, I discuss theory and research linking: (1) economic deprivation (i.e., poverty, inequality, joblessness) to urban economic restructuring; and (2) crime to economic deprivation. I begin with a discussion of the theoretical and empirical research suggesting a relationship between poverty, inequality, joblessness and changes in the structure of the urban economy. Next, I review contributions and limitations of research establishing a link between rates of poverty, inequality, and joblessness and rates of serious crime. Then I review the limited number of studies that explore the relationship between economic outcomes and crime with race-disaggregated data. I conclude with a brief discussion of my theoretical framework and expectations.

2.1 Urban Economic Restructuring and Economic Deprivation

Prior to the 1970's, large urban centers, particularly those in the Northeast and North central U.S., were major hubs of manufacturing and goods production. These industries featured high rates of unionization (Appelbaum and Albin 1990) and therefore supplied the local labor force with a large number of stable full-time jobs with relatively high wages. Moreover, the "internal" labor markets common to these blue-collar industries provided job ladders by which poorly educated members of the labor force were able to achieve some degree of upward mobility.

However, since the late 1960's, advancements in information technology, and the globalization of the economy have radically changed the economic order in the United States (Noyelle 1987). These changes were most dramatic in the older central

cities where employment in manufacturing industries has plummeted as a result of the relocation, downsizing and closing of production firms (Bluestone 1988; Moriarty 1986).

On the other hand, service employment in the central-city has increased substantially[1]. This is particularly true for the high-skill producer services (finance, insurance, real-estate, business services, and professional services), which are highly centralized in large cities (Sassen 1990; Kasarda 1985; Kodras and Padavic 1993).

Expectedly, "restructuring" has affected the center city labor market in a number of ways. First, restructuring had a twofold effect on the job supply in central cities. On the one hand, the growth of producer service and high-technology manufacturing industries has produced a large core of relatively secure high skill, high-wage jobs in center cities. On the other hand, the decline of traditional blue-collar manufacturing industries has removed a large share of the once abundant low-skill, middle-wage jobs that provided stability and mobility for the relatively uneducated segments of the urban labor force. Thus, the job distribution of many center-cities has become increasingly polarized with a core of high-skill, high-wage jobs on one end and a core of low-skill,

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[1]According to the U.S. Bureau of the Census, "central city" refers to the largest place in a given metropolitan statistical area (MSA) or consolidated metropolitan statistical area (CMSA). However, some MSA's or CMSA's have more than one central city, which may or may not be identified in the name of the MSA or CMSA. For my purposes, "central city" refers only to major U.S. cities with a minimum population of 100,000 residents. Cities with a population below this criterium are excluded when I use this term throughout the manuscript, although they may technically be "central cities" according to the Census definition.

low-wage jobs on the other end, with relatively few jobs in the middle (Harrison and Bluestone 1988; Bluestone and Harrison 1988; Bluestone 1988).

Second, the radical alteration of the job distribution in center-cities has also transformed the skill demands of central city industries. While a high school education once enabled movement into secure middle and upper income jobs, this is no longer the case. The exodus of blue-collar industries along with an "upskilling" trend occurring across industries and occupations has substantially increased the demand for labor holding educational credentials beyond a high school diploma (Murphy and Welch 1993) and decreased the demand for labor with a high school education or less (Kasarda 1990).

Several negative consequences have resulted from these change in the industrial structure of cities. First, to the extent that restructuring has produced a polarized job distribution, it has also increased the degree of income inequality (Bluestone 1990). Second, since the losses of blue-collar jobs have removed a substantial share of low-skill employment opportunities, restructuring has resulted in increased joblessness among those with fewer educational credentials (i.e., high school education or less). Third, because the service industries feature a much larger proportion of part-time employment than manufacturing industries, the economic shift from manufacturing to services has increased the extent of underemployment by low hours (See Lichter 1988). Finally, because low-skill service jobs generally pay less than low-skill production jobs (Appelbaum and Albin 1990), shifts in job supply have lowered earnings for many

center-city residents and increased the proportion of jobs paying near poverty wages, a condition described as "underemployment by low income" (See Lichter 1988).

The above evidence suggests changes in the industrial structure of center-cities have dampened the labor market prospects of low-skill center-city residents, in general. But, Kasarda (1985) and Wilson (1987) suggest that blacks have been especially vulnerable to these changes because despite recent gains in educational attainment, they continue to be over represented in educational categories experiencing the greatest job losses and under represented in those categories where jobs are growing (Kasarda 1989). For example, the proportion of center-city blacks graduating from high school increased by nearly 10% between 1980 and 1990, but only 8.2% of center-city blacks had four or more years of college in 1990, compared to 19.7% of center-city whites (U.S. Bureau of the Census 1983, 1993).

Thus, relative to whites, central-city blacks are at a substantial disadvantage when competing for jobs in the growing sectors of the center-city economy. As a consequence, the unemployment rate for central-city blacks is currently more than two and one-half times higher than the unemployment rate for central-city whites (U.S. Bureau of the Census 1993). Moreover, because the white unemployment rate has remained stable (5.7%) while the black unemployment rate has increased (12.8% to 14.4%), the race-gap in joblessness has grown worse since 1980 (U.S. Bureau of the Census 1983, 1993). Thus, while urban economic restructuring has harmed labor market prospects of low-skill center-city residents in general, the deleterious

consequences of this transition may be most severe for center-city blacks who disproportionally comprise the low-skill segment of the labor force.

Empirical studies examining the effects of restructuring have generally focused on two economic outcomes: employment and earnings inequality. Those studies examining the relationship between urban economic restructuring and employment/unemployment have generally supported the notion that restructuring has increased unemployment but findings are not completely consistent. For instance, Bound and Holzer's (1991) analysis of data from 52 SMSA's suggests that losses of manufacturing can account for 35 to 50 percent of the observed decline in employment among black male high school dropouts aged 16-24. Similarly, Bluestone, Stevenson and Tilly (1991) report that losses of manufacturing jobs are strongly related to increases in year round unemployment among black 20-year-olds with a high school education or less.

On the other hand, Welch (1990) reports that industrial change did not raise black unemployment in the 1970's. But, Moss and Tilly (1991) criticize Welch's study for the lack of emphasis on change in manufacturing which appears to have more pronounced effects on employment than other industrial sectors. Nonetheless, Stearns and Coleman (1990) report that black employment rates increase when manufacturing sector growth decreases.

Findings from research examining the effect of economic restructuring on income suggest that the growth of services has affected both overall earnings (Sheets et al. 1987) and income inequality (Harrison and Bluestone 1988). For instance, Sheets et

al. (1987) report that change in service industry employment has significant effects on change in the number of jobs that pay wages below the poverty level (a dimension of underemployment -- See Lichter 1988). These effects are particularly strong for producer service and retail trade employment.

Research investigating effects of restructuring on income inequality generally support the notion that inequality has increased with the economic transition from goods production to service employment. For instance, Nelson and Lorence (1985) report that rising service employment is positively linked to income inequality. Moreover, consistent with other studies, their research indicates that an increase of producer services employment is an especially strong predictor of income inequality.

In summary, a growing body of research in sociology and economics suggests that economic restructuring (i.e., the transition from manufacturing to service employment) is associated with low earnings (e.g., poverty), unemployment and income inequality. Given this body of research, there is reason to believe that urban economic restructuring is indirectly related to crime rates, through its impact on indicators of economic deprivation. However, few studies have addressed this issue, leaving a gap in the sociological literature.

2.2 Economic Deprivation and Crime

The lack of empirical research examining the link between crime and structural economic changes is surprising given the extensive history of research linking crime to economic conditions. Many of the classical criminological theories including Marxist,

strain, opportunity, and social disorganization, rely heavily on economic factors to account for variations in crime rates.

In general, there have been two theoretical interpretations of the empirical link between crime and economic deprivation. At the individual level of analysis, the association between economic deprivation and crime is assumed to result from the creation of economic motivation or frustration within individuals. In other words, poor and unemployed individuals are motivated to commit crimes to meet basic survival needs, or to acquire desirable goods and services which provide social status within the community. At the aggregate level of analysis, high rates of economic deprivation lead to high crime rates because of the detrimental effect on community social control. When poverty, joblessness and income inequality are widespread in a given community, the resources available to community institutions are severely limited. Thus, existing community organizations often begin to disintegrate, and the development of new organizations becomes extremely difficult. This reduces the capacity of the community to socialize and control its members and to resist invasions by deviant elements from the external environment. A consequence of this reduction in community social control is the proliferation of physical (e.g., broken windows, abandoned buildings and cars) and social (e.g., public drunkenness, drug dealing) disorder (Skogan 1990) and an increase of unsupervised peer groups (Sampson and Groves 1989), all of which are strongly associated with high rates of crime.

2.2.1 Poverty and Crime

Among the economic factors considered criminogenic, poverty may have the longest history. For many centuries social researchers have contended that economic need is related to crime, especially property crime. As early as the 1600's European cities and states began collecting data to examine the social consequences of economic conditions (Vold and Bernard 1986). This continued two centuries later when modern national crime statistics became available, and Guerry provided the first "scientific" study of the relationship between poverty and crime (Ibid 1986) and Quetelet (1831) published an elaborate analysis of crime in three European nations. However, both of these early studies produced the unexpected result that crime was highest in more economically prosperous neighborhoods, casting doubt on the expected positive poverty-crime relationship.

A century later, researchers at the Chicago School continued to assert the importance of poverty as a source of high crime rates (Shaw and McKay 1942). But, while earlier theoretical explanations emphasized social-psychological motivation as the underlying connection between poverty and crime, those at the Chicago school espoused an ecological explanation that focused on "criminal places" rather than criminal people. Noting that certain neighborhoods exhibited consistently high crime rates over many decades despite rather sweeping changes in ethnic composition, Clifford Shaw and Henry McKay developed the "social disorganization" theory which suggested that poor communities tended to feature higher crime rates not because poor people were inherently more criminal, but because their communities often lacked the

resources necessary to develop and maintain a stable organizational structure that facilitated socialization and social control functions.

However, while Shaw and McKay do posit a relationship between poverty and crime in Juvenile Delinquency in Urban Areas, they do not assert a direct *causal* relationship. Rather, they suggest that poverty affects crime indirectly via its effects on community ethnic composition and residential stability. In support of this theoretical explanation, Shaw and McKay (1942) present evidence establishing a first-order association between poor neighborhoods (measured by percent of families on public assistance) and several other factors including the incidence of disease, population turnover and high crime rates.

Contemporary research on the relationship between poverty and serious crime is quite mixed (Blau and Blau 1982; Crutchfield et al. 1982; Messner 1982; Williams 1984; Messner 1983), but the different levels of analysis in extant research may inhibit the comparability of many of these studies. At the SMSA level, Blau and Blau (1982) find that the percent poor has no effect on rates of murder, rape and assault, and an unexpected negative effect on robbery. Moreover, Messner (1982) also finds a theoretically inconsistent negative relationship between poverty and homicide rates.

However, Williams (1984) finds that poverty is positively related to homicide in a nonlinear fashion and Messner (1983) finds that the level of poverty in an SMSA is positively related to the rates of homicide. Finally, Crutchfield (1982) reports that the direction of the relationship between poverty and crime is dependent on the criminal offense category under examination. Specifically, he reports that poverty has a

significant negative effect on robbery and a significant positive effect on assault and burglary.

Studies at the city level also reveal mixed findings on the poverty-crime relationship. Harries (1976) examines cities of more than 25,000 population in 1970 and reports a positive correlation between rates of assault and the percent of families living in poverty. Similarly, Decker (1980) reports that poverty is positively related to violent and property crime offense rates. And Loftin and Parker (1985) report that the percentage of families below the poverty line is positively related to nearly all types of homicide in the 49 largest U.S. cities in 1973. Similar findings on poverty and violent crime victimization are reported by Decker (1980), Sampson and Castellano (1982) and Sampson (1986).[2] However, contrary to these findings, Watts and Watts (1981) report that the total offense rate for serious crimes is negatively related to poverty in a sample of 152 U.S. cities with a population of 100,000 or greater.

At the intra-city level (e.g., neighborhood or police district) findings are generally more consistent than those at higher levels of aggregation. Mladenka and Hill (1973) find that poverty has a strong positive effect on the rate of person crimes in 20 police districts in the city of Houston. However, they do not find an effect of poverty on property crime. Messner and Tardiff (1986) report that Manhattan neighborhoods with a higher proportion of families with income below 75% of the poverty level also

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[2] Decker reports that violent crime victimization is positively related to poverty when robbery is included in the violent crime index. However, if robbery is removed from this index the effect of poverty on violent crime victimization becomes negative.

exhibit higher rates of homicide. Similar findings are reported by Curry and Spergel (1988) and Taylor and Covington (1988).

More recently, Bursik and Grasmick (1993) report that economic deprivation (an index of poverty, unemployment rate, and the rate of public assistance per 100 residents) has a strong positive effect on the rate of male referrals to the juvenile court in 76 community areas in Chicago, Illinois between 1960 and 1980, suggesting that the poverty-crime relationship has remained stable during this period. Meanwhile, Shihadeh and Shrum (1997) report that poverty rates are positively related to attempted and completed homicide in 276 block groups in the city of Baton Rouge, Louisiana. However, they find that poverty does not affect any of the other index crimes.

Finally, Patterson (1991) and Smith and Jarjoura (1989) use the data from 57 residential areas in three SMSA's to analyze the poverty-crime relationship. Patterson's analysis reveals that the percent of households with income less than $5,000 has no relationship with neighborhood burglary rates, but is positively related to neighborhood violence rates. Meanwhile, Smith and Jarjoura (1989) report that the median neighborhood income is negatively related to rates of household burglary victimization.

In sum, research on the relationship between poverty and crime has a long history in sociology, but the empirical evidence is not completely consistent. However, much of the overall inconsistency may be attributable to the different levels of analysis in extant research. For example, while the bulk of SMSA-level studies do not support the expected positive relationship between poverty and crime, the weight of evidence from city-level studies does favor this positive relationship.

2.2.2 Inequality and Crime

Given the inconsistency of findings on the poverty-crime relationship, many researchers starting with Quetelet have suggested that the condition of relative need (i.e., inequality) is more criminogenic than *absolute need* (i.e., poverty). Consequently, it may be more appropriate to measure poverty on a relative scale given that "poverty is always in part a subjective condition, relative to what others have, rather than a simple objective fact of the presence or absence of a certain amount of property or other measure of wealth" (Vold and Bernard, 1986:138).

This general perspective has its roots in Marxian theory (e.g., Bonger 1916) which implicitly identifies economic inequality, rather than absolute poverty, as the main source of criminal activity. Early Marxist criminologists, such as Bonger (1916), posited that crime was a consequence of the exploitation of the poor by the rich, and the greed stimulated by the capitalist mode of production.

More recently, strain theorists (Merton 1938; Cohen 1955; Cloward and Ohlin 1960) have linked unequal opportunity to crime. They suggest that the common cultural goal of monetary wealth is rather equally distributed in American society, but access to culturally approved means of attaining this goal is not equally distributed. This disjuncture in goals and means (opportunities) produces social strain, which can lead to a disenchantment with, and an alienation from, the legitimate social system and its norms of acceptable behavior. When this occurs, alternative and often illegal means of attaining cultural goals may be devised and implemented.

Despite widespread acceptance and influence through the 1960's, strain theories have not fared well empirically and have been heavily criticized for their cultural components (Kornhauser 1978). Consequently, the strain model has declined in popularity in the last 20 years despite recent attempts at revitalization (see Agnew 1992). But, interest in the more general inequality-crime relationship has not waned and has even increased in recent years. This is due, in part, to Blau and Blau's (1982) seminal work on inequality and violent crime in metropolitan areas.

The Blau's posit a thesis in which economic inequality is viewed as a major source of intra-society conflict. But they contend that the type of inequality that produces aggression and violence is dependent on a society's existing institutional system. In democratic societies, inequality based on differences in personal skill can be justified, but those based on ascribed characteristics cannot be justified. Therefore, where egalitarian principles prevail, ascriptive inequalities undermine community integration, create social disorganization and increase latent animosities which lead to criminal violence. Consistent with their theoretical argument, the Blau's report that high levels of inequality among the total population and between racial groups are related to high rates of violent crime in metropolitan areas.

Subsequent studies examining the Blau's inequality-violence thesis have produced mixed results. Blau and Golden (1986) nearly completely replicate the findings of Blau and Blau, while Williams (1984) reports that homicide is related to racial inequality but not overall inequality when nonlinearity in the data is accounted for. Similarly, Balkwell (1990) reports that two measures of racial inequality are

positively related to homicide, while overall inequality (gini coefficient) has no effect on homicide. Finally, Messner and Golden's (1992) analysis also supports the link between ascriptive inequality and violence.

While the above studies lend partial support the Blau's hypotheses regarding inequality and violent crime, several studies fail to support their hypotheses (Balkwell 1983; Messner 1982, 1983; Messner and Golden 1985; Messner and South 1986; Patterson 1991; Rosenfeld 1986; Messner and Tardiff 1986). For instance, Patterson (1991) reports no significant relationship between total inequality (measured by the gin coefficient) and burglary rates. Moreover, Rosenfeld (1986) reports that racial income inequality has no effect on murder, robbery or assault rates. In fact, the absence of a significant effect leads Rosenfeld (1986) to conclude that "the dollar gap between blacks and whites has no independent influence on crime rates." (p. 127).

Recent studies extending inequality-crime research have examined both direct and indirect effects and have used alternative measures of inequality (Harer and Steffensmeier 1992; Shihadeh and Steffensmeier 1994). Harer and Steffensmeier (1992) apply reference-group theory and argue that within-race inequality may be a more appropriate measure of relative deprivation since people are more likely to compare themselves to those with whom they share some social or physical characteristic (e.g., race). However, findings from their study do not lend unequivocal support this argument. In fact, Harer and Steffensmeier (1992) report that income inequality, regardless of how it is measured, is a strong and significant predictor of white violence but a weak and nonsignificant predictor of black violence. However,

Shihadeh and Steffensmeier (1994) account for these unexpected results by demonstrating that within-race inequality affects black violence indirectly, via its effect on family disruption, which is strongly related to black violence. More recently, LaFree and Drass (1996) analyzed the within-race inequality-crime relationship with national time-series data covering the 1957-1990 period. Contrary to the findings from the city-level study of Shihadeh and Steffensmeier (1994), they report that within-race inequality has a significant direct impact on homicide rates for U.S. blacks and whites. However, the divergent findings from these studies may be attributable to different research designs (e.g., cross-sectional city level vs. national time-series).

In summary, a large number of researchers have contended that relative deprivation, as reflected by income inequality, may be a better predictor of crime than absolute poverty since "poverty" is nearly always a relative condition. Consequently, a substantial body of research on inequality and crime has been amassed. Despite somewhat inconsistent findings, research generally indicates that high levels of inequality are associated with the high rates of violent crime in urban areas of the U.S.

2.2.3 Joblessness and Crime

Given the long history of linking crime to economic circumstances, it is hardly surprising that many researchers have pointed to joblessness as a criminogenic factor. Theoretically, high rates of unemployment and labor force non-participation may increase crime rates in a number of ways. At the individual level, widespread unemployment may increase crime rates by creating a critical mass of economically motivated offenders who are compelled to commit crime to satisfy basic needs or to

acquire desired goods (Thornberry and Christenson 1984; Schmidt and Witte, 1984; Sullivan 1989).

At the aggregate level of analysis, low labor force participation rates may increase crime by disrupting or hindering the development and maintenance of community organizational and normative structure, which severely reduces the capacity of the social system (i.e., the community) to socialize and control its members. The consequences of this process go beyond the mere creation of motivated offenders. As Wilson (1987) suggests, widespread joblessness among adults in a community increases the likelihood of labor force exclusion for the next generation by decreasing the probability that children will interact with residents who are embedded in a network of legitimate employment. This reduces the connection to job information networks that may aid future job-seekers in their pursuit of employment. Joblessness may also lead to crime by increasing the rates of female-headed households and unsupervised peer groups, both of which are associated with aggregate crime rates (Sampson 1987; Shihadeh and Steffensmeier 1994; Sampson and Groves 1989).

An alternative viewpoint on the unemployment-crime relationship arises from Criminal-Opportunity Theory (Land and Felson 1976) and Routine Activities Theory (Cohen and Felson 1979). Both of these two perspectives suggest that high levels of unemployment may actually reduce crime because unemployed persons are more likely to be at home, which reduces the opportunity for criminals to pilfer domestic property. Moreover, since unemployed persons are presumably more likely to be at home, there is

a reduction in the probability of direct physical contact with motivated violent offenders, thereby reducing the opportunity for violent crime.

Given these divergent theoretical perspectives on the relationship between unemployment and crime, it is hardly surprising that the empirical evidence on this issue is somewhat inconsistent. Many studies report a positive unemployment-crime relationship (Nagin 1981; Sjoquist 1973; Carroll and Jackson 1981; Chiricos and Norton 1982), while others find a negative association (Cohen et al. 1980; Cantor and Land 1985; Land et al. 1990) and still others report no significant relationship at all (Land and Felson 1976; Orsagh 1981; Leveson 1976).

The inconsistent findings regarding the unemployment-crime relationship can partly be attributed to the varying data and methods utilized in previous research (Chiricos 1987). Moreover, Allan and Steffensmeier (1989) contend that many of the studies suffer from statistical and measurement weaknesses which cast doubt on the validity and reliability of their findings. Moreover, part of the reason for the marginal and inconsistent effects in extant research is the failure to examine the relationship using race-specific measures of unemployment and crime (see Shihadeh and Ousey 1997). This is a major shortcoming given that neither crime nor unemployment is proportionally distributed in the U.S. population. Indeed, analyses of data for the total population reflect mainly the white experience because whites are roughly 70% of the U.S. population. But, as noted earlier, both unemployment and crime are disproportionally concentrated in urban black communities. Thus, research that does

not use race-specific measures of crime *and* unemployment is likely to obscure important race differences in the unemployment-crime relationship.

Despite the limitations and inconsistencies of previous research, the preponderance of the empirical evidence still favors a positive unemployment-crime relationship. That is, high unemployment rates are associated with high rates of crime. In fact, the most comprehensive review of unemployment-crime research (Chiricos 1987) demonstrates that of all studies which report a statistically significant relationship, unemployment is positively related to property crime rates in 100% of the studies and positively related to violent crime rates in 88% of the studies. Thus, despite a smattering of contradictory or unsupportive evidence, the vast bulk of the literature (especially at the sub-national level) supports the theoretical expectation of a positive relationship between unemployment and crime.

2.2.4 Economic Deprivation and Race-Specific Crime

The above review suggests that there is ample evidence linking crime to several measures of economic well-being, including poverty, inequality, and joblessness. However, relatively few of these studies have examined these relationships with racially-disaggregated data. This is a major limitation given that my review of the few macro-level studies that utilize race specific data clearly shows that the structural predictors of crime rates differ for blacks and whites, regardless of the level of aggregation (Harer and Steffensmeier 1992; LaFree et al. 1992; LaFree and Drass 1996; Shihadeh and Ousey 1996). For example at the national level, LaFree et al. (1992) report that family income and unemployment significantly affect robbery and burglary

rates for whites, but not for blacks. On the other hand, income and unemployment affect homicide rates for blacks, but not for whites. Moreover, a recent national time-series study by LaFree and Drass (1992) reports that the relationship between within-race inequality and burglary is positive and significant for blacks, but not for whites. On the other hand, an index of "economic well-being" that combines data on income and unemployment is a significant predictor of robbery and burglary rates for whites, but not for blacks.

At the SMSA level, Harer and Steffensmeier (1992) also find differing effects of economic variables for blacks and whites. They report that inequality (regardless of how it is measured) has a strong effect on white rates of violence, but a weak effect on black rates of violence. In addition, they report that poverty affects homicide offending for whites, but has no significant effect for blacks.

Consistent with the above studies, Messner and Golden's (1992) analysis of city-level data suggests that resource deprivation (an index consisting of percent poor, percent children living with two parents, median family income, gini coefficient of income inequality, percent black and unemployment rate) has a significant association with white homicide but not with black homicide. However, contrary to the findings of Harer and Steffensmeier (1992), they report that racial income inequality has similar effects on white and black homicide offending rates.

Despite the weak support for the effects of economic variables on black crime rates reported in the research cited above, two recent studies report that the effect of economic variables on black rates of violence may be indirect. Sampson (1987)

examines 171 cities in the U.S. in 1980 and reports that black male joblessness has a substantial effect on black violence that is largely transmitted through its effect on family disruption. Similarly, an analysis of 158 cities by Shihadeh and Steffensmeier (1994) reveals that black-to-black income inequality affects rates of black violence indirectly via its effect on family disruption.

The above review suggests that structural relationships exist between urban economic restructuring and a number of indicators of economic deprivation (e.g., economic inequality, poverty, joblessness) considered to be criminogenic. Thus, previous research implies that urban economic restructuring may affect rates of serious crime in central cities. However, while this relationship is important theoretically, it has generally been overlooked by sociologists studying crime.

I am aware of only two studies (Crutchfield 1989, Shihadeh and Ousey 1997) that have examined any aspect of the relationship between a city's job structure and its crime rates, and these studies have not explored fully the theoretical and empirical relationships between urban economic restructuring and crime. In the first of these two studies, Crutchfield (1989) applies dual labor market theory to help explain the positive relationship between the percent of workers in secondary sector jobs (e.g., service workers, machine handlers, cleaners, helpers and laborers) and rates of murder, assault, rape and robbery. He contends that secondary sector workers face greater job instability, experience lower labor force attachment and are therefore more likely to find themselves in a "situation of company" that is conducive to crime.

In the other research linking crime to a city's industrial structure, Shihadeh and Ousey (1997) examine the relationship between low-skill job access and race-specific rates of homicide using city-level data. Their findings indicate that low-skill job access indirectly affects violent crime through its effect on economic deprivation. They report that the loss of low-skill jobs increases deprivation, which in turn, leads to higher rates of homicide.

However, these two studies are limited in a number of ways. First, Crutchfield only examines 1980 data for Seattle, Washington. His use of of cross-sectional data prevents an analysis of the dynamic nature of industrial restructuring. Moreover, his focus on a single city prevents a generalization to other major cities in the United States. Second, the research by Shihadeh and Ousey is also limited by several factors. To begin, the research employs a broad classification of low-skill jobs as the measure of industrial change. Therefore, the implication is that a general loss of entry-level employment is the major detriment to economic well-being. But, entry-level job loss has not occurred across all industries in large U.S. cities. Rather, it has been confined primarily to the goods-producing sector in general, and manufacturing in particular. And, in fact, entry-level employment in the service sector has actually expanded during the 1970-1990 period. A graphic representation of these divergent trends for manufacturing and low-skill service sector employment is depicted in Figure 2.1. Moreover, since the stability offered by low-skill employment varies widely between the goods-producing and service sectors, combining these diverse industries into a global measure of low-skill jobs may obscure differences in the economic and social

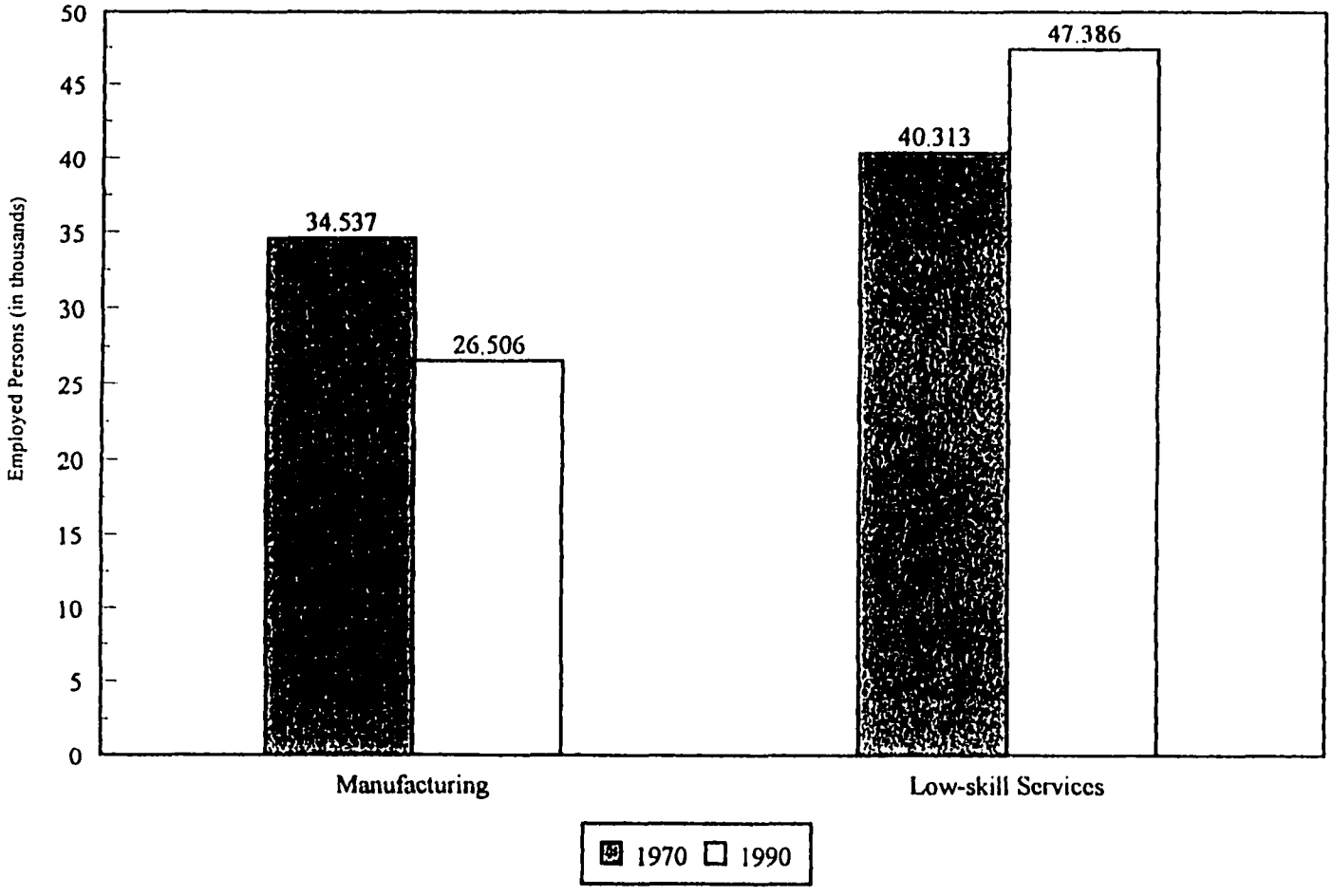

Figure 2.1: Average Number of Employed Persons in Manufacturing and Low-Skill Services in 113 U.S. Cities, 1970 and 1990.

consequences resulting from the industrial transition. In addition, the paper by Shihadeh and Ousey is limited to an analysis of homicide only. Therefore, it says nothing about how industrial restructuring has influenced other forms of serious crime.

The current research builds upon the earlier work investigating the relationship between industrial restructuring and crime in several ways. First, I extend the research of Shihadeh and Ousey (1997) by further specifying the nature of the industrial restructuring and its extensive impact. In addition, I extend earlier work by investigating the effect of the industrial transition on several unique dimensions of economic deprivation (e.g., poverty, joblessness, within-race inequality, total inequality), and crime (homicide, robbery and burglary).

2.3 Theoretical Framework and Expectations

2.3.1 Theoretical Framework

In this project, I propose a theoretical argument that suggests that the transition from manufacturing to service employment led to an increase in rates of serious crime in major American cities. I contend that this transition reduced the availability of stable, high-quality low-skill jobs, which resulted in an increase of economic problems such as poverty, unemployment and income inequality. And this economic downturn had a pernicious impact on the community's ability to socialize and control its members. The mechanisms by which increasing economic deprivation reduces community social organization and social control are briefly discussed below.

High rates of poverty reduce community social control in a number of ways. First, poverty hinders the development of close-knit friendship networks that provide

community integration. This occurs because poverty increases the presence of physical and social disorder (see Skogan 1990) and residential instability which tends to make residents suspicious of one another (Skogan 1990) and reduces overall community attachment (Kasarda and Janowitz 1974). Second, high rates of poverty reduce the viability of local community organizations. This occurs because poverty-stricken communities have limited financial resources to allocate to local educational, religious and civic organizations which serve as agents of socialization and social control. Thus, parochial organizations flounder in poorer communities and fewer residents actively participate in them (Sampson and Groves 1989). Finally, extremely poor urban communities typically have little political power, which reduces their ability to secure goods and services from public agencies (e.g., funds for community clean up programs; additional police patrol). And without this support from municipal agencies social control initiatives engineered by community residents tend to be unsuccessful.

High rates of unemployment or labor force dropout in a community also reduce social control in several ways. First, when there are no jobs available, income is limited and poverty abounds. This reduces community stability through the mechanisms delineated above. But, widespread joblessness reduces community stability and increases crime in other ways. Jobs provide a framework and structure for people's lives. When jobs aren't available, this framework is removed. And when joblessness is pervasive in a community, the overall structure of the community is altered. Those who are without work for extended periods lose their connection to mainstream institutions

and job information networks. This ultimately may reduce their commitment to conventionality, thereby increasing their probability of immoral or illegal behavior.

But the implications of high rates of joblessness go beyond the reduction of labor force attachment for individuals who have lost jobs. Perhaps a more serious consequence is the effect that widespread joblessness has on young residents who have yet to reach working age. As these individuals age, they may find it exceedingly difficult to develop any connection to the legitimate labor force because of they lack access to conventional occupations. Moreover, the paucity of "conventional" role models who attend work daily, in conjunction with a relative abundance of "unconventional" role models, tends to increase the availability of illegitimate opportunity structures and cultural support for involvement in illegitimate "work". In sum, pervasive joblessness decreases community social control by attenuating attachment to the conventional world of work for those who have been displaced from the labor force, and by hindering the development of this attachment for young residents.

Finally, income inequality may also reduce the ability of a community to regulate the behavior of its members. As noted earlier, the experience of deprivation is often a relative one. That is, people feel economically deprived when they compare themselves to others who have more. When income inequality is high in a given area, the perception of relative deprivation also is likely to be elevated. And when this occurs, community crime rates may be higher. Many previous researchers have suggested that this occurs because of the motivational impact of relative deprivation. In

other words, when inequality is high, people who are relatively deprived experience frustration and seek to even the score by committing crimes. While this argument has some merit for explaining deviance on the individual level, as an explanation for aggregate crime rates, it is reductionist and overly constraining.

My contention is that the aggregate level relationship between economic inequality and crime occurs because of the negative impact that high income inequality has on community social control. I suggest that this reduction of social control occurs because deprived individuals become alienated from the mainstream. They may become resentful of their economically superior neighbors and therefore will be less willing to develop friendship ties, which are critical to establish and maintain community integration. Moreover, the alienated residents are unlikely to actively participate in community organizations, which further weakens community integration and the ability to regulate the behavior of residents.

In sum, my theoretical framework for this study suggests that the link between urban economic restructuring and crime is indirect, involving two structural paths. First, by reducing the availability of stable, high-quality low-skill jobs the industrial transition increased rates of poverty, unemployment and income inequality. And second, the increase of economic deprivation increased rates of crime (by reducing community social control). This theoretical model is depicted in Figure 2.2.

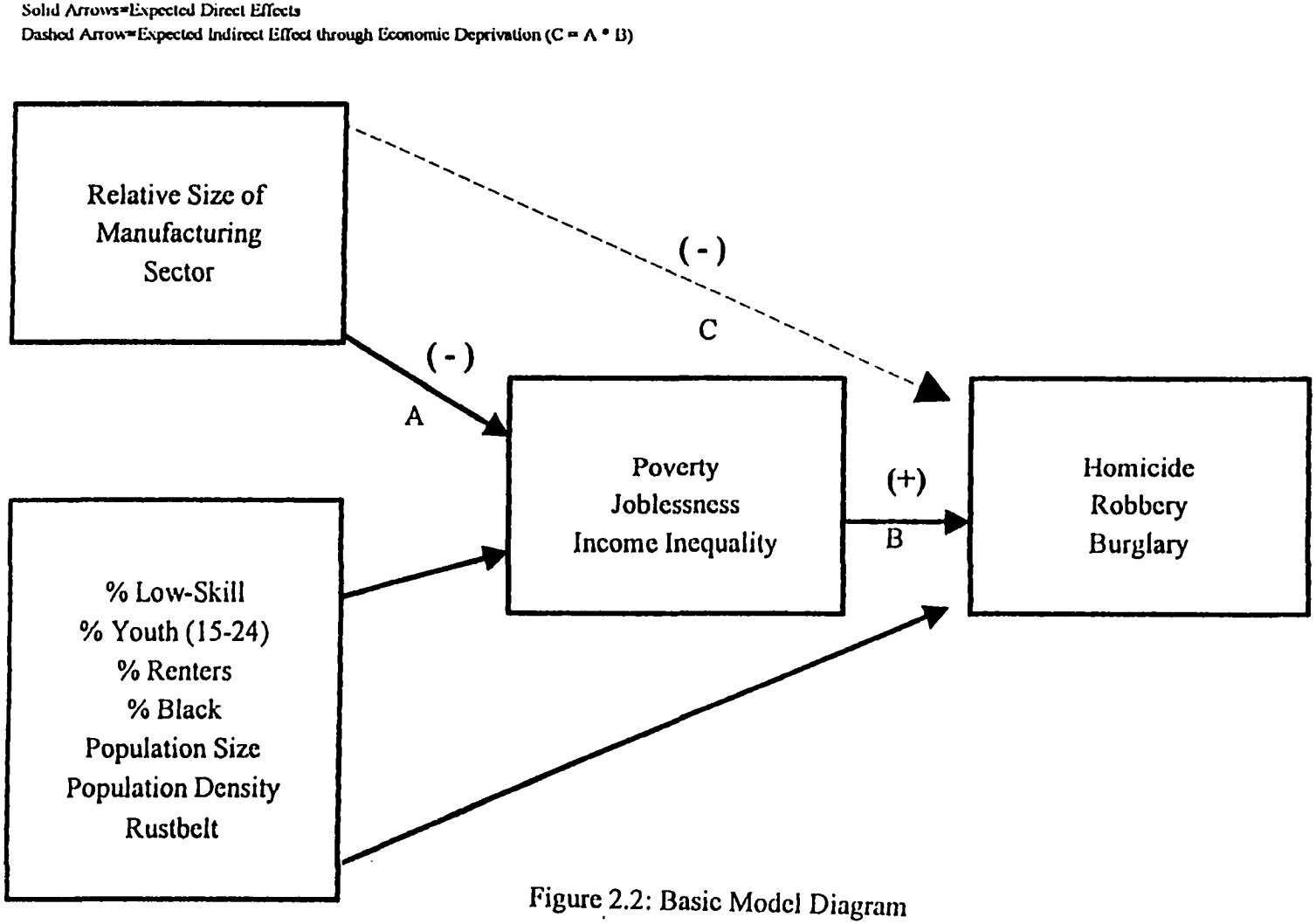

Figure 2.2: Basic Model Diagram

2.3.3 Expectations

Based upon my theoretical framework and findings from previous research, I expect to find several things regarding the relationship between a city's industrial structure, economic deprivation and crime. These expectations are stated below:

E1: I expect to find that the relative size of the manufacturing sector has a direct negative association with each measure of economic deprivation (i.e., poverty, joblessness and income inequality).

E2: I expect to find that each measure of economic deprivation (i.e., poverty, joblessness and income inequality) has a direct positive association with each measure of crime (i.e., homicide, robbery and burglary).

E3: I expect to find an indirect negative association between the relative size of the manufacturing sector and each measure of crime, which is transmitted via poverty, joblessness or income inequality.

E4: I expect to find that the direct negative association between the relative size of the manufacturing sector and each measure of economic deprivation (i.e., poverty, joblessness and income inequality) is greater for blacks than for whites.

E5: I expect to find that the indirect negative association between the relative size of the manufacturing sector and each measure of crime (i.e., homicide, robbery and burglary) is greater for blacks than for whites.

CHAPTER 3

DATA AND METHODS

3.1 Units of Analysis

The units of analysis for this study are U.S. cities with a minimum total population of at least 100,000 and a minimum black population of 5,000 in 1990 and 1970 and for which race-disaggregated Census and UCR arrest data are available. These criteria result in a non-random sample of 113 of the major cities in the United States (see Table 3.1). All 113 cities are included in all analyses.[1] Therefore, strictly speaking, inferences should be confined to the cities analyzed, and generalizations to the population of all cities should not be made. However, I contend that generalizations to all U.S. cities that meet the population criteria can be made with some caution.

The year 1970 is chosen as the base year for the longitudinal analysis because it approximates the beginning point of the economic restructuring process occurring in U.S. cities. Thus, data for the 1970-1990 period should capture the bulk of changes in

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[1]A detailed analysis of outliers was conducted for all regression models estimated. Standard diagnostics (i.e. studentized deleted residuals, DFFITS, DFBETAS, Cook's D) were utilized to determine whether outliers were present and the extent to which outlying cities unduly influenced the fit of the regression line and the vector of parameter estimates. In a few instances, Detroit, MI and Albany, NY were identified as outliers by large studentized values (greater than t[.95,120]=1.65). However, in all of these instances, influence diagnostics suggested that the fit of the regression line and the vector of coefficients was not unduly influenced by these outlying cases. Therefore, remedial measures were unnecessary. However, to increase confidence in the robustness of my findings, I re-estimated the models without the outlying cases. As expected, the estimates from the models excluding outliers were virtually identical to those with the full sample. Consequently, I report only estimates based upon the full sample of cities.

Table 3.1: Sample of Cities Used in the Analyses.

1	Akron, OH	39	Gary, IN	77	Phoenix, AZ
2	Albany, NY	40	Grand Rapids, MI	78	Pittsburgh, PA
3	Albuquerque, NM	41	Greensboro, NC	79	Portland, OR
4	Alexandria, VA	42	Hampton, VA	80	Portsmouth, VA
5	Amarillo, TX	43	Hartford, CT	81	Providence, RI
6	Arlington, VA	44	Houston, TX	82	Raleigh, NC
7	Atlanta, GA	45	Huntsville, AL	83	Richmond, VA
8	Austin, TX	46	Indianapolis, IN	84	Riverside, CA
9	Baltimore, MD	47	Jackson, MS	85	Rochester, NY
10	Baton Rouge, LA	48	Jersey City, NJ	86	Rockford, IL
11	Beaumont, TX	49	Kansas City, MO	87	Sacramento, CA
12	Berkeley, CA	50	Knoxville, TX	88	San Antonio, TX
13	Birmingham, AL	51	Lansing, MI	89	San Diego, CA
14	Boston, MA	52	Las Vegas, NV	90	San Francisco, CA
15	Bridgeport, CT	53	Lexington, KY	91	San Jose, CA
16	Buffalo, NY	54	Little Rock, AR	92	Santa Ana, CA
17	Charlotte, NC	55	Long Beach, CA	93	Savannah, GA
18	Chicago, IL	56	Los Angeles, CA	94	Shreveport, LA
19	Cincinnati, OH	57	Louisville, KY	95	St. Louis, MO
20	Cleveland, OH	58	Lubbock, TX	96	St. Paul, MN
21	Colorado Springs, CO	59	Memphis, TN	97	St. Petersburg, FL
22	Columbus, GA	60	Miami, FL	98	Stamford, CT
23	Columbus, OH	61	Milwaukee, WI	99	Stockton, CA
24	Corpus Christi, TX	62	Minneapolis, MN	100	Syracuse, NY
25	Dallas, TX	63	Montgomery, AL	101	Tacoma, WA
26	Dayton, OH	64	New Haven, CT	102	Tampa, FL
27	Denver, CO	65	New Orleans, LA	103	Toledo, OH
28	Des Moines, IA	66	Newark, NJ	104	Topeka, KS
29	Detroit, MI	67	Newport News, VA	105	Tucson, AZ
30	El Paso, TX	68	Norfolk, VA	106	Tulsa, OK
31	Elizabeth, NJ	69	Oakland, CA	107	Virginia Beach, VA
32	Erie, PA	70	Oklahoma City, OK	108	Waco, TX
33	Evansville, IN	71	Omaha, NE	109	Washington, DC
34	Flint, MI	72	Orlando, FL	110	Waterbury, CT
35	Fort Lauderdale, FL	73	Pasadena, CA	111	Wichita, KS
36	Fort Wayne, IN	74	Paterson, NJ	112	Winston-Salem, NC
37	Fort Worth, TX	75	Peoria, IL	113	Yonkers, NY
38	Fresno, CA	76	Philadelphia, PA		

the city industrial structure and the impact these changes have on poverty, joblessness, income inequality and serious crime.

3.2 Data

The data analyzed in this project came from two primary sources. Data describing demographic, social and economic characteristics of cities are drawn from the 1970, 1980, and 1990 summary statistics files compiled by the U.S. Bureau of the Census. The data for 1970 are taken from the fourth count Summary Statistic File and data for 1980 and 1990 are drawn from Summary Tape Files 3C. Any additional information not available in the summary files is obtained from published volumes of the U.S. Census. The arrest data utilized in this project are taken from a special tabulation of the Uniform Crime Reports from the Federal Bureau of Investigation.

3.3 Measurement of Variables

3.3.1 Dependent Variables

The dependent variables in this study are race-specific city arrest rates for homicide, robbery, and burglary. While arrest data for all crimes are subject to a number of criticisms, arrest data for homicide, robbery and burglary are selected for several reasons. First and foremost, only arrest statistics allow me to construct race-specific crime rates for all the cities in my sample. Other crime data sources either do not provide race-specific measures of offending (e.g., UCR offense data), or do not provide race-specific information about homicide, robbery, and burglary offenders in all 113 cities in my sample (e.g., NCVS data, Vital statistics mortality data). Second, these three offenses are regarded as among the most serious. Seriousness is an important

consideration since previous research suggests that it strongly influences whether or not a crime will be reported to the police, recorded by law enforcement officials, and cleared by an arrest (Black and Reiss, 1970; Gottfredson and Gottfredson, 1980; Gove et al. 1985; LaFree et al. 1992). Third, these three offense categories capture both the violent and property dimensions of criminal offending. This allows me to explore the link between industrial restructuring and different dimensions of crime, rather than simply focusing on one crime (e.g., homicide). Fourth, previous research demonstrates a high level of correspondence between the race of the offender (when known) in official (UCR) and victimization (NCS) data for the crimes of robbery and burglary (O'Brien, 1985; Hindelang, 1978). And, while a similar comparison cannot be made with homicide rates since victims of murder cannot be interviewed regarding their own victimization, this offense category is generally regarded as the most reliably reported and recorded (Sampson 1987) and it has the highest clearance rate of the index offenses (Federal Bureau of Investigation 1995). Finally, recent research suggests patterns of homicide, robbery, and burglary arrest rates are remarkably close to their corresponding offense rates. In fact, LaFree et al. (1992) find that for the period of 1957-1988, the correlation between arrest rates and offense rates are .98 for robbery, .97 for homicide and .95 for burglary.

Thus, despite suffering from a number of weaknesses, there is a great deal of evidence which supports the use of arrest data on homicide, robbery and burglary as an indicator of criminal offending. Moreover, since arrest data is the only source of race-specific offense data, my focus on race-specific crime severely limits the alternatives.

To reduce the problem of large year-to-year fluctuations in arrest data (see Sampson 1985: 1986), I compute homicide, robbery and burglary rates for 1970, 1980, and 1990, by averaging the arrest counts over a three-year period and then expressing that figure as a rate per 100,000 persons. For example, the 1970 homicide arrest rate is calculated by taking the average of the number of homicide offenses for 1969, 1970 and 1971 expressing this average as a rate per 100,000 persons. In addition, since the distribution of city crime rates tends to have a large positive skew, the UCR arrest rates are logarithmically transformed to induce homoscedasticity.

3.3.2 Key Independent Variables

The term "economic restructuring" has been used to describe a variety of economic trends in recent years (see Sassen 1990, p. 467 for a discussion of these), but for the purposes of this study, I conceptualize economic restructuring as the progressive transition from manufacturing employment to service employment that has occurred in most large U.S. cities. In general, major U.S. cities have experienced large losses of low-skill manufacturing jobs relative to service jobs.

To measure the degree to which a shift from manufacturing-to-services has occurred, I employ the **manufacturing ratio**. This is measured as the number of persons employed in durable and nondurable manufacturing industries to the number employed in high-skill (e.g., finance, insurance, real estate, educational services, health services, other professional services, and public administration) and low-skill (e.g., personal services, entertainment and recreation; retail trade and wholesale trade) service

jobs.[2] Thus, this measure reflects the relative size of the manufacturing sector relative to the service sector in a city's industrial structure, and provides an indicator of the availability of stable, low-skill jobs in the high-paying manufacturing sector.[3] As discussed earlier, the stability and high pay associated with jobs in the highly-unionized productive and extractive industries have been important factors contributing to the economic prosperity of city residents with lower levels of education.

3.3.3 Key Endogenous Variables

To tap the extent of absolute deprivation (**poverty**) in the community, I measure the percent of black/white persons with income below the poverty line. To measure the extent of relative deprivation, I use two indicators. First, I measure the extent of **total income inequality** using the gini coefficient of income concentration among all city

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[2] My initial interest was in estimating the unique impact on economic deprivation and crime of manufacturing, high-skill services and low-skill services. However, there is a high correlation between the percentage in manufacturing, the percentage in low-skill services, and the percentage in high-skill services. This is particularly true in the longitudinal data describing the change in the relative size of these industries between 1970 and 1990. Consequently, models including each of these variables exhibit substantial evidence of multicollinearity. In these equations, variance inflation factors often exceeded five and condition indices were in excess of eighty (15-30 is generally regarded as problematic). Moreover, when one of the three variables was removed from the equation, parameter estimates and standard errors of the remaining two variables fluctuated considerably. Given the problems associated with trying to estimate the independent impact of these variables, I have combined them into a single measure of a city's industrial structure.

[3] The denominator of the manufacturing sector includes both and high- and low-skill jobs that vary considerably in terms of job quality. By including these together, I am not implying that all high-skill service jobs are bad jobs, they clearly are not. Rather, I am simply acknowledging that an abundance of these jobs relative to manufacturing jobs has deleterious consequences for low-skill residents who typically do not have access to these jobs because they lack the necessary educational credentials.

residents. Second, in the 1990 analysis I employ race-specific gini coefficients to measure the extent of **within-race inequality**.

The measure of **joblessness** used in this study is the percentage of black/white persons age 16+ who are unemployed or not in the labor force. Unlike traditional measures of unemployment, it is not weakened by the exclusion of discouraged persons who are no longer actively seeking employment (i.e., discouraged workers). However, this measure has its own weakness that must be acknowledged. Given the limitations of the Census summary tape data files, this measure includes individuals who are not in the labor force for reasons other than the inability to find a job (e.g., students and homemakers).

3.3.4 Control Variables

A number of variables are included as sensible controls given their relationship to crime rates established in prior research. Since both economic deprivation and crime may be a function of the concentration of low-skill residents in a city, I control for the effects of variation in the educational level of the black and white city residents (**low-skill blacks/low-skill whites**) measured as the percent of the population aged 25 and over with less than four years of high school education. **Black youth** and **white youth** are age-structure controls that account for variation across cities in the size of a high crime age group (ages 15 to 24). Presumably, a large percentage of persons in the high-crime age group will increase the crime rate. **Black renters** and **white renters** is the percentage of black or white occupied housing units that are rented. This social disorganization measure serves as a proxy for community attachment and community

stability which are believed to affect the ability of the community to control patterns of criminal activity. Renters tend to be more transient than homeowners and have less invested in the community. Therefore, they may care little about what happens in the community in the future since they anticipate leaving at the earliest opportunity. Consequently, socialization and social control mechanisms are likely to suffer in communities that exhibit a large percentage of housing units occupied by renters. The natural logarithm of the **city population** controls for variation in the size of cities. Previous research suggests that larger cities tend to have higher rates of criminal activity. The **percent black** of the total city population is a control for racial composition of the city. Some have claimed that black's harsh experience in the United States (e.g., slavery and racial discrimination) has led them to adopt a value system that condones violent behavior. This "subculture of violence" may contribute to the unusually high rates of violent crime among blacks (Curtis 1975; Silberman 1978; Wolfgang and Ferracuti 1967).

Finally, to control for regional variation in crime rates and economic restructuring, I include a regional dummy-variable. As noted earlier in this work, industrial restructuring has been most pronounced in the large cities of the northeast and Midwest (i.e., the rustbelt). Therefore, I use the dummy-variable **rustbelt** (sunbelt as omitted) to estimate regional differences in its consequences (i.e., economic deprivation and crime).[4]

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[4]In previous studies of the structural predictors of crime (particularly violence), a dummy variable for the southern region of the U.S. has been used to control for the

3.4 Estimation Strategy

3.4.1 1990 Cross-Sectional Analysis

This study consists of two major sections of data analysis, with each employing path analytic techniques to investigate structural equations that describe the direct and indirect effect of the manufacturing ratio on economic deprivation and crime. The first analysis involves an examination of cross-sectional data for 1990. The structural equations for these cross-sectional models are estimated using ordinary least squares (OLS) multiple regression.

The initial OLS models predicting the endogenous or intervening variables (i.e. poverty, income inequality, and joblessness) are represented as follows:

$$y = X\beta + \epsilon$$

where y is a (Nx1) vector of responses for the endogenous variables, X is the (113 x 9) matrix of nonstochastic regressors (including constant) described above, β is a (9 x 1) vector of parameter estimates and ϵ is a vector of random disturbances with a mean E[e] = 0 and covariance matrix $\sigma^2 I_n$. The subsequent models predicting crime rates are:

$$y = X\Gamma + \epsilon$$

where y is the natural log of the city black/white crime rate, X is the (113 x 10) matrix

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southern subculture of violence. As an alternative approach I used this dummy variable scheme and re-analyzed my models. The results indicate that the south dummy variable is a significant predictor in some equations, suggesting that the crime rates in the south are significantly different from crime rates in other regions of the country. However, using a south dummy in place of the rustbelt dummy does not change the findings for the variables of theoretical interest. Thus, I report only the results from the equations using the more relevant rustbelt dummy variable.

of regressors (including key independent variables, endogenous variables and control variables). Γ is a (10 x 1) vector of parameter estimates and ϵ is a vector of random disturbances with the properties described above.

The *indirect effects* of the exogenous variables are calculated using standard structural equation modeling methods (see Duncan 1975; Bohrnstedt and Knoke 1980). For example, the indirect effect of X_1 on Y is computed as $(\beta_{ix}*\Gamma_{yi})$ where β_{ix} is the standardized regression parameter reflecting the standard deviation unit change in the endogenous variable I for a one standard deviation change in X, and Γ_{yi} is the standardized regression parameter estimating the standard deviation unit change in the ultimate dependent variable Y for each standard deviation change in the endogenous variable I.

Tests of the statistical significance of indirect effects are computed by employing methods for comparing the difference in regression coefficients between models, developed by Clifford Clogg and colleagues. (Clogg, Petkova, and Haritou 1995; Clogg, Petkova, Shihadeh 1992). In the linear regression case this significance test statistic, t, is expressed formally as:

$$t=d_k/s(d_k)$$

where d_k refers to the arithmetic difference in the metric coefficient for variable k in the reduced model, (b_k), and the metric coefficient for variable k in the full model (b_k*) and $s(d_k)$ refers to the standard error of this difference which is derived by the following formula:

$$s(d_k)=[s^2(b_k) - s^2(b_k*)\ \sigma^2_F\ /\ \sigma^2_R\ ]^{1/2}$$

where s^2b_k is the squared standard error of the metric coefficient for variable k in the full model, s^2b_k* is the squared standard error of the metric coefficient for variable k in the reduced model, σ^2_F is the mean squared error in the full model and σ^2_R is the mean squared error in the reduced model. The test statistic follows the normal t-distribution.

3.4.2 1970-1990 Change Analysis

The cross-sectional analysis is designed to establish whether inter-city variation in the manufacturing ratio is related to inter-city variation in measures of economic deprivation and crime. However, the static nature of the cross-sectional data does not adequately capture the dynamic nature of the industrial restructuring process and its consequences. Therefore, I extend my analysis by investigating the proposed theoretical models with data describing twenty-year change in city industrial structure, economic deprivation and crime for the 113 cities in my sample. To this end, I estimate the effects of changes in predictor variables (exogenous and endogenous) on changes in homicide, robbery and burglary rates between 1970 and 1990. While models of this type can be estimated using standard least squares regression techniques, there are technical issues involved in the analysis of change data that must be considered. Therefore, estimation is less straightforward than in the cross-sectional analysis.

One of the major issues that must be considered revolves around how change is measured. In the last fifteen years, there has been an ongoing debate about the proper way to measure change and the correct method for estimating models that contain data collected at more than one point in time (Kessler and Greenburg 1981; Liker, Augustyniak, and Duncan 1985; Plewis 1985; Allison 1990; Liska and Bellair 1995;

Firebaugh and Beck 1994; Finkel 1995). Generally, there are four prominent strategies: (1) the unconditional difference-score method, in which the time one scores for all variables are subtracted from their time two scores ; (2) the conditional difference model, in which the change in the dependent variable between time one and time two is regressed on the independent variables (measured at time one or time two); (3) the cross-lagged or regressor variable method, in which the time two score dependent variable is regressed on the K independent variables and the lagged value of the dependent variable; and (4) the residual score method, in which the dependent variable at time two (Y_2) is first regressed on its time one score (Y_1), yielding a residual score that is then predicted by the independent variables.

Although the difference-score approach is the most intuitive method for analyzing change (Allison 1990; Liska and Bellair 1995), many have avoided this strategy because change-score methods are believed to be characterized by measurement unreliability and bias due to the negative correlation between change in the dependent variable and its time one value (i.e. regression to the mean). Consequently, many researchers have followed the lead of Bohrnstedt (1969), who advocated the use of the cross-lagged or regressor variable method. However, a number of other researchers are critical of the cross-lagged approach and have suggested that this method is inferior to the difference-model in many situations common in social science research (Allison 1990; Liker et al. 1990; Firebaugh and Beck 1994). This contention is based upon a number of factors. First, it is argued that the introduction of time one values of the dependent variable to control for the problems created by regression towards the mean

is more likely to introduce, rather than eliminate bias (see Liker, Augustyniak, and Duncan 1985, p. 88-89). Second, from a theoretical standpoint, it is often difficult to justify the inclusion of time one values of the dependent variable (Allison 1990; Liker et al. 1985). And third, cross-lagged models do not eliminate the omitted variable bias created by unmeasured time-invariant variables (Firebaugh and Beck 1994; Allison 1990). Thus, to the extent that these variables are correlated with the predictors in the model, the cross-lagged approach to analyzing change results in biased estimation of parameters.

The preceding discussion reveals that there is no legitimate consensus on the proper way to model dynamic social processes. And, in fact there is substantial disagreement on this issue. Rather, than choosing a side in this debate, I follow the lead of Liska and Bellair (1995) who decide that it is best to estimate parameters with several methods and to report any major differences in findings from the alternative estimation strategies.

The baseline estimation method for my analysis is the unconditional first-differences approach. I selected this method because it is clearly the most intuitive method for studying change and it involves normal assumptions about the disturbance term (i.e. mean zero, constant variance). In formal matrix notation, the unconditional first-differences equations can be expressed as:

$$\Delta Y = \Delta XB + \Delta \epsilon$$

where ΔY refers to the (N x 1) vector of changes in the dependent variable (e.g. poverty, joblessness, inequality, homicide rates, robbery rates, burglary rates) between 1970 and

1990. ΔX refers to the (K x N) matrix of changes in the predictor (exogenous and endogenous) variables between 1990 and 1970, and $\Delta\epsilon$ is the random disturbance term with a zero mean and constant variance. In this equation, the time one value of the dependent variable is not included on the right-hand side as this would result in biased estimates due to the negative correlation between Y_1 and the disturbance term (Allison 1990; Liker, Augustyniak, and Duncan 1985).

For comparative purposes, I will also estimate the equation using the cross-lagged and residual score methods. Major differences in coefficients of interest from equation estimated with these alternative strategies will be footnoted and presented in Tabular form in the appendices. The cross-lagged model can be represented formally as (in linear notation):

$$Y_2 = \alpha + X_{k2} + Y_1 + \epsilon$$

where Y_2 refers to the value of the dependent variable at time two, X_{k2} refers to the value of the kth predictor variable at time two, Y_1 refers to the value of the dependent variable at time one, and ϵ is the usual random disturbance term.

In my analysis, the residual score method is identical to the unconditional change model with the exception that the dependent variable is the least squares residual from the regression of Y_2 on Y_1. Given the similarity to the unconditional difference model formally illustrated above, I do not formally express this model here.

3.5 Multicollinearity Diagnostics

In the social sciences, researchers often encounter the situation in which there is a high degree of correlation between independent variables in the multivariate models. This condition, called *multicollinearity* creates a number of problems with the estimation of parameters. One problem is that parameter estimates for one variable can vary widely when another variable that is highly correlated with the first variable is added or dropped from the model. Therefore, the common interpretation of a regression coefficient as reflecting the change in the dependent variable for a unit increase in an independent variable, net of other explanatory factors, is no longer fully applicable (Neter, Wasserman and Kutner 1985). Another problem is that standard errors are inflated when multicollinearity is present. This may bias significance tests so the researcher concludes no significant effect, when a statistical relation does exist. A related problem is that standardized regression coefficients often become inflated when multicollinearity is severe. In sum, the presence of high intercorrelations between independent variables in a regression model can result in a number of problems in estimation and inference. Therefore, it is critical that researchers be aware of these potential problems.

To evaluate the degree of multicollinearity in structural equation models I estimated, I utilize a number of formal diagnostic tools. First, I evaluated the bivariate correlation matrices for the variables utilized in each analysis. These are presented in appendix A.1 through appendix A.4. The highest correlation between independent variables in the black cross-sectional models is between black poverty and low-skill

blacks (ρ=.61). In the white cross-sectional models, the highest correlation among predictors is for white joblessness and low-skill whites (ρ=.69). In the change analysis, the highest bivariate relationship in the models for blacks and whites is between the manufacturing ratio and the indicator variable for rustbelt cities (ρ=-.75). These correlations are relatively high, but taken alone, are not indicative of severe problems with multicollinearity. However, multicollinearity cannot be detected fully by the examination of the correlation matrix, because it is possible for a combination of three or more variables to be collinear despite relatively low bivariate correlations.

Given the limitation of the correlation matrix for the diagnosis of multicollinearity, I employ two additional diagnostic measures to help reveal the extent of linear dependence in the matrix of explanatory variables. First, I compute variance inflation factors (VIF's) for each regression model estimated. Variance inflation factors are the diagonal elements of the standardized $(X'X)^{-1}$ matrix. A VIF of one (1.0) for any predictor indicates that the variable is orthogonal to all other explanatory variables. Values greater than 1.0 indicate that the regressor is not orthogonal to all other explanatory variables. In other words, multicollinearity is present to some degree. While there is not one value of the variance inflation factor that indicates that multicollinearity is unacceptably high, most researchers regard values between 5.0 and 10.0 as indicative of severe multicollinearity (Neter, Wasserman and Kutner 1985; Judge et. al 1985). However, which VIF level represents unacceptable collinearity is generally a judgement made by each individual researcher. My own preference is for a more conservative approach. Consequently, I regard VIF values in excess of 4.0 as

unacceptably high. In the analyses presented in the next two chapters, there are no instances where the variance inflation factors exceed four. In the cross-sectional analysis, the highest VIF is 3.68, which corresponds to low-skill whites in the regression model predicting white robbery rates. And, in the change analysis, the highest VIF is 3.60. While these values indicate that the presence of multicollinearity is resulting in some inefficiency, they do not suggest that remedial measures are necessary to estimate these regression equations.

Finally, although the variance inflation factor is an advance over the correlation matrix as a diagnostic tool for multicollinearity, this measure is limited in that it "cannot distinguish between several simultaneous multicollinearities" (Neter, Wasserman and Kutner 1985; p. 411). Thus, a complete analysis of multicollinearity should involve more complex methods. One method involves decomposition of the X'X matrix (see Judge et al. 1985; Belsley et al. 1980). This technique involves analyzing the number of relatively small characteristic roots. The ratio of each root to the largest root in the matrix produces a diagnostic called the *condition number* or *condition index* (see Judge et al. 1985; Belsley et al. 1980). Condition indices close to, or in excess of 30 are often considered an indication that multicollinearity is substantially affecting the standard errors of OLS estimates. The total number of condition indices that are in excess of 30 provide an indication of the number of near linear dependencies in the regressor variable matrix.

To further investigate the extent of multicollinearity in my regression models, I computed condition indices. The results from this analysis generally confirm the

findings of the analysis of variance inflation factors. Condition indices rarely approached 30 suggesting that the OLS standard errors were not unduly inflated by the presence of high intercorrelations among the predictor variables. Thus, I conclude that remedial measures for dealing with multicollinearity (e.g., ridge regression) are not necessary in my analyses.

CHAPTER 4

CROSS-SECTIONAL MODELS

4.1 Univariate Analysis

In this chapter, I begin my investigation of the relationship between a city's industrial structure, economic deprivation and crime. Using data from the 1990 Census and the Uniform Crime Reports for 1989-1991, I examine the cross-sectional relationship between the variables described in Chapter 3. First, I present univariate statistics for all the variables analyzed in this chapter. Then, I test empirically the research questions set forth in Chapter 3 by estimating a series of ordinary least squares structural equations. I conclude with a brief summation of the major findings of this chapter.

In Table 4.1, means and standard deviations of all the variables in the cross-sectional analysis are presented. Several notable findings are revealed by these descriptive statistics. First, the mean for manufacturing ratio (.239), indicates that on average, high- and low-order service jobs outnumber manufacturing jobs by greater than a four-to-one ratio. Thus in 1990, the industrial structure of major U.S. cities is largely comprised of jobs in service industries, with relatively few in the manufacturing sector. This evidence supports the notion that the industrial structure of America's urban core has undergone a progressive transition from goods-production to service employment. Additional evidence on the actual change in the industrial structure of my sample of cities is presented in the next chapter.

Table 4.1: Descriptive Statistics for Variables in the Cross-Sectional Analysis.

Variable	Mean	Std. Dev.
Manufacturing Ratio 1990	.239	.117
Black Poverty Rate	30.77	7.81
White Poverty Rate	11.73	4.26
Black Unemployment Rate	13.83	3.57
White Unemployment Rate	5.60	1.88
Black Jobless Rate	44.73	6.79
White Jobless Rate	38.15	5.69
Black Inequality (Gini)	44.90	3.20
White Inequality (Gini)	42.90	4.20
Total Inequality (Gini)	41.40	4.72
Black Education (< High School)	34.26	7.98
White Education (< High School)	21.97	9.24
Black Youth Aged 15-24	17.12	1.92
White Youth Aged 15-24	14.79	3.12
Black Renters	63.23	8.71
White Renters	44.69	8.81
Percentage Black	26.38	17.44
Population Size	386.479	465.852
Population Density	2575	7374
Rustbelt (%)	32.74	--
Black Homicide Rate	46.08	27.71
White Homicide Rate	8.17	8.54
Black Robbery Rate	418.10	225.56
White Robbery Rate	55.19	43.15
Black Burglary Rate	561.86	259.38
White Burglary Rate	181.59	104.88

N=113.

A second notable feature is the sharp contrast in rates of economic deprivation between blacks and whites in the sample of cities. For instance, the average black poverty rate (30.77%) is roughly two and one-half times as high as the average white poverty rate (11.73%). A similar picture is revealed by the unemployment rate for blacks (13.83%) and whites (5.60%).

The third highlight is the wide gulf between central city blacks and whites with regard to criminal activity. Based on the data presented here, the average black homicide rate (46.08) is more than five and one-half times the average white homicide rate (8.17).[1] And this race difference in criminality is not limited to homicide. In fact, an even greater difference is found for robbery where the average black rate (418.10) is more than seven and one-half times the average white rate (55.19). Moreover, burglary rates for blacks and whites follow a similar pattern, although the differences are less drastic than for homicide and burglary. Thus, the data demonstrate that in terms of economic deprivation and crime, the conditions endured by center-city blacks are substantially worse than those experienced by their white counterparts. Central-city

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[1] The crime data analyzed here are arrest data, and are therefore subject to biases. To the extent that they are biased, they do not provide an accurate reflection of rates of criminal offending. However, while there has been considerable debate on this issue in criminological circles (see Hindelang 1978; Huizinga and Elliott 1987; Gove et al. 1985; O'Brien 1985), recent researchers have concluded that utilizing arrest data for the serious offenses of homicide, robbery and burglary minimizes the potential problems inherent in arrest data (LaFree and Drass 1996). Thus, I limit the current work by only analyzing homicide, robbery, and burglary arrest data. However, because biases may still be present in these data, I replicated my analyses with alternative data sources (e.g. Vital statistics mortality data, UCR offense data) when possible. In general, the results from these models are consistent with those using arrest data, which increases my confidence in the use of arrest data as a proxy for offending.

blacks are disproportionally poor, undereducated, unemployed and involved in criminal activity. However, while center-city blacks are considerably worse off than center-city whites overall, rates of poverty, joblessness, income inequality, and crime for both groups exhibit considerable inter-city variation. For example, while the average rate of black poverty is nearly 31%, the black poverty rate ranges between 10% and 47%. Moreover, the white poverty rate, which averages nearly 12%, ranges between 4% and 25%. Similar variability is evident for joblessness, inequality and crime. This suggests that while blacks face more socioeconomic disadvantages than whites in nearly all major cities of the U.S., the extent of these disadvantages varies across cities.

4.2 Multivariate Analysis

The multivariate analyses presented in this chapter involve the estimation of six total path models, three for black and three for whites. In each one, path coefficients are estimated by OLS structural equations. In the first equation associated with each model, economic deprivation variables for blacks or whites (e.g., poverty, joblessness, within-race income inequality, and total income inequality) are endogenous, with the manufacturing ratio and control variables as the predetermined (or exogenous) predictor variables. Then in the second equation associated with each path model, black or white crime rates (i.e., homicide, robbery and burglary) are endogenous with the measures of economic deprivation (the endogenous variables in the first-stage equations), the manufacturing ratio and the control variables as the predictor variables. This research

strategy facilitates the estimation of the proposed theoretical direct and indirect association between industrial restructuring, economic deprivation and crime.[2]

4.2.1 First-stage Models with Black Economic Deprivation Variables Endogenous

In Table 4.2, results from the first-stage OLS structural equations predicting the four measures of economic deprivation for the black population are presented. The first two columns display the results from the models predicting black poverty rates. Note that the estimate for the manufacturing ratio reveals a significant negative relationship. This result implies that cities which feature relatively large manufacturing sectors exhibit lower black poverty rates ($b=-13.54, B=-.21, p < .05$).

In addition to the negative impact of the manufacturing ratio, several other variables in the model have statistically important associations with poverty rates. First, black poverty rates are elevated in cities with a high percentage of low-skill black residents (less than high school education). The magnitude of the standardized estimate ($b=.625, B=.65, p < .05$) indicates the extreme importance of educational credentials in the high-technology economies of American cities.

Second, black poverty rates are significantly higher in cities that feature smaller proportions of black residents. This finding is somewhat counterintuitive since the common perception is that poverty is most extreme in predominantly black communities. But, this negative coefficient may suggest that once the impact of the

[2] A description of how indirect effects coefficients are estimated is presented in the previous chapter.

Table 4.2: OLS Regression Estimates of Equations Predicting Black Economic Deprivation Variables in U.S. Cities, 1990.

	Black Poverty		Black Joblessness		Black Inequality		Total Inequality	
	b	β	b	β	b	β	b	β
Manufacturing Ratio	-13.54	-.21[a]	-11.99	-.21[a]	-9.72	-.36[a]	-10.36	-.26[a]
Low-Skill Blacks	.625	.65[a]	.886	.52[a]	.399	.50[a]	.408	.35[a]
Black Youth (15-24)	.041	.04	-.282	-.08	-.094	-.06	-.028	-.01
Percentage Black	-.087	-.20[a]	.063	.16[a]	.027	.15	.128	.47[a]
Black Renters	-.251	-.28[a]	-.158	-.20	-.034	-.09	.074	.14
Population Size	.325	.03	1.56	.17[a]	.112	.03	1.13	.18
Population Density	.375	.06	1.09	.18	.032	.01	.232	.06
Rustbelt	3.05	.18[a]	2.48	.17	1.55	.23[a]	-2.04	-.20
Constant	22.39		-45.89		.127		-15.04	
R^2	.442		.511		.436		.422	

[a]P < .05 (two-tailed tests); [b]P < .10 (two-tailed tests).

city job structure and the educational level of the black population are held constant, the percentage black no longer has the expected positive relationship with poverty. However, I caution against strictly interpreting this coefficient since it is utilized as a sensible control rather than a precise measure of a theoretical concept.

Third, the proportion of occupied housing units that are renter-occupied has a negative association with black poverty rates. Thus, cities that feature more renters exhibit lower rates of poverty among blacks. Similar to the effect of percent black discussed above, the negative coefficient is somewhat unexpected. It could be argued that poorer communities have more renters because the poor cannot afford to purchase homes. And if this is the case, we would expect a positive bivariate association between percentage of black renters and black poverty. But, this expectation is not confirmed by my analysis. However, I again avoid making strong inferences from this negative coefficient because there is no strong theoretical link between the poverty rate and the percentage of renters in a city.

Finally, poverty rates among center city blacks are significantly higher in cities located in the northeastern and midwestern (rustbelt) states. This is consistent with expectations. As discussed in earlier chapters, the northeast and midwest underwent perhaps the most radical industrial transition taking heavy losses in manufacturing employment. As a consequence, poverty rates in these regions have increased to levels that exceed rates in other regions of the nation.

In the second model of Table 4.2, black joblessness replaces black poverty and is regressed on the manufacturing ratio and control variables. As in the model

predicting black poverty, there is a statistically significant negative effect of the relative size of the manufacturing sector on joblessness. A one standard-deviation increase in the manufacturing ratio is associated with a one-fifth of a standard-deviation decrease in black joblessness (B=-.21, $p < .05$). Thus, the size of the manufacturing sector relative to the service sector is an important determinant of labor market activity for central city blacks. In cities where manufacturing employment is abundant relative to service employment, blacks are more likely to be employed or actively seeking employment. Conversely, when service employment tends to greatly exceed manufacturing employment, center city blacks are more likely to be unemployed and no longer searching for legitimate work (i.e., out of labor force). These results are supportive of the proposed theoretical connection between industrial restructuring and economic deprivation.

Other variables significantly related to the rate of black joblessness include the percent low-skill (b=.886, B=.52, $p < .05$), percentage black (b=.063, B=.16, $p < .05$) and population size (b=1.56, B=.17, $p < .05$). The coefficients for these variables suggest that the rate of black joblessness is highest in cities with a large low-skill population, a large share of black residents, and a large population.

In the third model of Table 4.2, black-to-black inequality replaces black joblessness as the endogenous variable. Like the previous two models, the manufacturing ratio has a significant effect on black inequality (b=-9.72, B=-.36, $p < .05$). The negative coefficient suggests that cities with relatively large manufacturing sectors feature lower levels of black income inequality. Thus,

manufacturing employment works to even out the income distribution in the black community. Meanwhile, black income inequality is heightened in cities with higher proportions of high-school dropouts (b=.399, B=.50, $p < .05$) and in rustbelt cities (b=1.55, B=.23, $p < .05$).

The fourth model of Table 4.2 presents the results from the equation in which overall income inequality (i.e., not race-specific) is regressed on the manufacturing ratio and control variables. The direction of the estimated effect of the manufacturing ratio in this equation mirrors the results from the previous three models, in that the greater the size of the manufacturing sector relative to the service sector, the lower the level of economic deprivation. A one standard-deviation unit increase in the manufacturing ratio is associated with a one-fourth standard deviation decrease in overall income inequality (B=-.26, $p < .05$). Also consistent with previous findings, the percentage of black high school dropouts has a significant positive association with overall income inequality (b=.408, B=.35, $p < .05$). Total income inequality is also higher in cities where blacks comprise a large proportion of the population (b=.128, B=.47, $p < .05$).

In sum, the message relayed in Table 4.2 is clear. Economic deprivation in various forms, is associated with the relative size of the manufacturing sector. Cities where the number of manufacturing jobs is large relative to service sector jobs exhibit lower levels of poverty, joblessness, and inequality among blacks. These findings are consistent with my theoretical prediction about the effect of industrial restructuring on economic deprivation.

4.2.2 First-Stage Equations with White Economic Deprivation Variables Endogenous

Table 4.3 presents estimates from the "first-stage" regression equations predicting economic deprivation for center-city whites. These models are identical to those from Table 4.2 except they present estimates based on data summarized for the white city population only.[3]

In the first model of Table 4.3, the rate of white poverty in the 113 center cities is regressed on the manufacturing ratio, and "white" control variables. In this model, the parameter estimate for the manufacturing ratio is negative and statistically significant ($b=-8.47$, $B=-.24$, $p < .05$). This indicates that cities with larger shares of manufacturing employment (relative to service employment) exhibit lower white poverty rates. This result resembles closely, the finding presented in the first model of Table 4.2. In fact, although the metric coefficient for manufacturing ratio in the model predicting black poverty appears much larger than in the model predicting white poverty, the difference is not statistically significant at the .05 level. Thus, the effect of the relative size of the manufacturing sector on poverty rates is essentially equal for black and white center city residents, which does not support my expectation (E4) regarding racial differences in the consequences of industrial restructuring.

In addition to the effect of the manufacturing ratio, white poverty rates also are affected by two other variables in the model. Not surprisingly, the percentage of

[3] The exception is the measure of total income inequality, which is computed from data for all city residents, regardless of race.

Table 4.3: OLS Regression Estimates of Equations Predicting White Economic Deprivation Variables in U.S. Cities, 1990.

	White Poverty		White Joblessness		White Inequality		Total Inequality	
	b	β	b	β	b	β	b	β
Manufacturing Ratio	-8.47	-.24[a]	-9.65	-.20[a]	-7.09	-.20[b]	-8.38	-.21[a]
Low-Skill Whites	.373	.82[a]	.313	.62[a]	-.085	-.23[a]	.010	.02
White Youth (15-24)	.474	.37[a]	.028	.02	-.117	-.09	-.020	-.01
Percentage Black	-.027	-.11	.105	.32[a]	.076	.31[a]	.136	.50[a]
White Renters	-.026	-.05	.019	.03	.105	.22[a]	.064	.12
Population Size	.798	.14	.126	.02	.515	.09	.884	.14
Population Density	.156	.04	.916	.18[a]	.052	.01	.227	.05
Rustbelt (Sunbelt)	.015	.00	2.32	.19[a]	-.340	-.04	-.923	-.09
Constant	-10.78		4.68		.392		24.12	
R^2	.597		.556		.332		.334	

[a]P < .05 (two-tailed tests), [b]P<.10 (two-tailed tests).

whites with less than 4 years of high school has a particularly strong impact on the poverty rate (b=.373, B=.82, $p < .05$). A one standard unit change in low-skill whites is associated with a .82 standard unit change in the rate of white poverty. Again, this strong relationship underscores the importance of educational credentials in the current urban economy where skill demands have become increasingly elevated. Finally, white poverty rates also are significantly related to the percentage of white youths aged 15-24 (b=.474, B=.37, $p < .05$). In other words, cities with a high proportion of young people tend to have elevated rates of poverty. This association may reflect that fact that young people in this age group may not have completely established themselves in the labor market, resulting in reduced earnings and poverty.

In the second model of Table 4.3, white joblessness is regressed on the manufacturing ratio and the seven controls. Consistent with previous results, the relative size of the manufacturing sector has a significant negative association with white joblessness (b=-9.65, B=-.20, $p < .05$). This implies that the job prospects of whites are superior in cities where manufacturing employment is abundant relative to service employment. Control variables having a significant impact on white joblessness include low-skill whites (b=.313, B=.62, $p < .05$), percentage black (b=.105, B=.32, $p < .05$), population density (b=.916, B=.18, $p < .05$), and rustbelt (b=2.32, B=.19, $p < .05$).

The third model of Table 4.3 presents results from the equation predicting within-race inequality for whites (white inequality). The pattern of findings from this model generally mimic those from the first two models in the table. As with the earlier models for whites (as well as those for blacks), the effect of the manufacturing ratio is

negative and significant (b=-7.09, B=-.20, $p < .10$). However, unlike the previous models, the estimate for the manufacturing ratio only reaches the .10 level of significance (two-tailed test). Thus, while the evidence offered in this model is somewhat weaker, the story remains essentially the same. By affecting the degree of income inequality among center-city whites, the relative size of the manufacturing sector makes an important contribution to the economic well-being of white center-city residents.

While the effect of the manufacturing ratio is generally consistent with the results from previous models, the effect of low-skill whites is clearly divergent. The negative sign is opposite of results from earlier models. Here, an increase in the percentage of low-skill whites is associated with a decrease in the degree of income inequality (b=-.085, B=-.23, $p < .05$). This implies that cities with a high proportion of white high school dropouts exhibit relatively even income distributions. Meanwhile, white income inequality is elevated in cities with a large percentage black (b=.076, B=.31, $p < .05$) and a high proportion of white renters (b=.105, B=.22, $p < .05$).

Results from the final model in Table 4.3 suggests that the larger the manufacturing ratio (i.e. the relative size of the manufacturing sector), the lower the degree of income inequality for all city residents. This finding is consistent with earlier results and lends additional support to the theoretical prediction that the eroding away of the manufacturing base has exacerbated economic conditions in center cities.

The findings reported in Tables 4.2 and 4.3 give credence to the argument that industrial restructuring produced negative economic outcomes in center cities. The

findings make it abundantly clear that inter-city variation in poverty, joblessness, and income inequality is linked to variation in the distribution of manufacturing and service industries. In general, economic deprivation is heightened in cities featuring a relatively small manufacturing sector and a large service sector. On the other hand, economic conditions are much improved when the reverse is true.

While my first two research expectations are supported by the results presented in Table 4.2 and Table 4.3, my expectation regarding race differences in economic outcomes (E4) is not supported. In fact, the parameter estimates suggest that the economic consequences of industrial restructuring are far reaching, having virtually identical effects on black and white city residents.

4.2.3 Full Structural Models Predicting Black Homicide Rates

Table 4.4 displays results from four regression models predicting black homicide rates. For each model, the first two columns present the metric and standardized direct effects. The third column presents indirect effects via the economic deprivation variables that were endogenous in the "first-stage" regression equations presented above (Tables 4.2 and 4.3).

In the first equation of Table 4.4, black homicide arrest rates are regressed on black poverty, the manufacturing ratio, and the control variables. The results from this equation reveal several interesting findings. First, there is no significant direct effect of the manufacturing ratio on black homicide. Thus, a change in the relative size of the manufacturing sector is not directly associated with a change in rate of black homicide. However, there is a significant indirect effect of the manufacturing ratio on black

homicide via black poverty (first model, third column). Remember that the indirect effect coefficient, -.07, is product of the direct effect of the manufacturing ratio on black poverty (B=-.21, presented in Table 4.2) and the direct effect of black poverty on black homicide (B=.34, Table 4.4 second column).[4] Thus, consistent with theoretical expectations, an increase in the relative size of the manufacturing sector reduces black homicide indirectly, by first decreasing the rate of black poverty.

In addition to positive direct effect of black poverty, two other variables have a direct impact on black homicide rates. These include the percentage black (b=.011, B=.36, $p < .05$) and black renters (b=.014, B=.21, $p < .10$). The coefficients for these variables suggest that black homicide rates are higher in cities with greater proportions of black residents and smaller proportions of black home owners. Although I make no explicit research hypotheses with regard to these two variables, their effects on black homicide largely conform with theoretical predictions derived from subculture of violence and social disorganization perspectives.

In the second model of Table 4.4, black joblessness replaces black poverty in predicting black homicide. As in the first model, the manufacturing ratio has no direct association with black homicide. Rather, the impact is indirect, working through joblessness which has a powerful direct effect on black homicide (b=.039, B=.49, $p < .05$). In fact, a standard unit increase in the rate of black joblessness is associated with

[4] All indirect effects estimates are computed using standardized coefficients.

Table 4.4: OLS Estimates of Structural Equations Predicting Rates of Black Homicide in U.S. Cities, 1990.

	Direct Effect		Indirect Effect via Black Poverty	Direct Effect		Indirect Effect via Black Joblessness	Direct Effect		Indirect Effect via Black Inequality	Direct Effect		Indirect Effect via Total Inequality
	b	β		b	β		b	β		b	β	
Endogenous:												
Black Poverty	.025	.34[a]	--	--	--	--	--	--	--	--	--	--
Black Joblessness	--	--	--	.039	.49[a]	--	--	--	--	--	--	--
Black Inequality	--	--	--	--	--	--	.066	.38[a]	--	--	--	--
Total Inequality	--	--	--	--	--	--	--	--	--	.018	.16	--
Exogenous:												
Manufacturing Ratio	.327	.07	-.07[a]	.217	.045	-.10[a]	.464	.10	-.14[a]	.117	.03	-.04
Low-Skill Blacks	-.007	-.10	.22[a]	-.008	-.12	.25[a]	-.006	-.09	.19[a]	.003	.05	06
Black Youth	-.037	-.13	.01	-.006	-.02	-.04	-.013	-.05	-.02	-.025	-.09	.00
Percentage Black	.011	.36[a]	-.07[a]	.008	.24[a]	.08[a]	.009	.28[a]	.06	.006	.20[b]	.08
Black Renters	.014	.21[b]	-.10[a]	.016	.26[a]	-.10	.012	.19[b]	-.03	.006	.09	.02
Population Size	.112	.15	.01	.034	.05	.08[a]	.094	.13	.01	.085	.11	.03
Population Density	-.070	-.14	.02	-.105	-.22[b]	.09	-.066	-.14	.00	-.062	-.13	.01
Rustbelt	-.154	-.13	.06[a]	-.210	-.18[b]	.08	-.193	-.17	.09[a]	-.032	-.03	-.03
Constant	1.69			1.40			-.591			2.09		
R^2	.249			.273			.234			.155		

[a]P < .05 (two-tailed tests), [b]P<.10 (two-tailed tests).

roughly a one-half standard unit increase in the rate of black homicide. And the product of this direct effect and the effect of the manufacturing ratio on black joblessness (B=-.21, $p < .05$) produces a significant indirect effect of the manufacturing ratio on black homicide (-.10, $p < .05$). These results imply that when manufacturing employment declines relative to service sector employment (as has occurred in most large U.S. cities over the previous twenty years), black homicide rates tend to increase.

In the third model of Table 4.4, black inequality is substituted for black joblessness. Thus, this equation involves the regression of black homicide on black-to-black inequality, the manufacturing ratio and the set of control variables. The results presented here reveal a familiar pattern. First, black homicide is elevated in cities with higher levels of black income inequality ($b = .066$, $B = .38$, $p < .05$). And second, black homicide is lower in cities where the manufacturing base is large relative to service employment (indirect effect = -.14, $p < .05$).

In the final model of Table 4.4, black homicide rates are regressed on total inequality, the manufacturing ratio and the seven statistical controls. The results from this regression equation depart from the three previous models predicting black homicide rates. In this model, the measure of economic deprivation (i.e. total inequality) has no direct association with black homicide. Consequently, there are no significant indirect effects via total inequality. Moreover, the fourth model in Table 4 fits the data rather poorly. With only one marginally significant predictor and an R^2 of .155 (adjusted R^2=.08), this is clearly the worst fitting model in the 1990 cross-sectional analysis.

Taken together, the findings in Table 4.4 generally support my theoretical expectations. Black economic deprivation is an important direct predictor of black homicide in major U.S. cities. Moreover, the manufacturing ratio is important as an indirect predictor of black homicide. Thus, my contention that the shift from manufacturing to services has affected black homicide rates through its impact on poverty, joblessness and income inequality is generally upheld.

4.2.4 Full Structural Models Predicting White Homicide Rates

In Table 4.5, results from equations predicting white homicide rates are presented. The first model shows results from the structural equation in which white homicide is regressed on white poverty, the ratio of manufacturing to services, and the "white" control variables. As in the first black homicide model (see Table 4.4), there is no significant direct effect of the manufacturing ratio on white homicide rates. Therefore, the data indicate that neither black nor white homicide rates are directly influenced by the relative size of the manufacturing sector. Instead, the effect of the manufacturing ratio is indirect, transmitted through its impact on white poverty, which has a powerful direct effect on homicide. And the combination of the effect of the manufacturing ratio on white poverty ($B=-.24$, $p < .05$) and the effect of white poverty on white homicide ($B=.38$, $p < .05$) produces a significant and negative indirect effect of the manufacturing ratio on white homicide ($-.24 * .38 = -.09$, $p < .05$). This suggests that as manufacturing employment declines relative to service employment, white poverty and white homicide both increase. This pattern of findings mirror those found

Table 4.5: OLS Estimates of Structural Equations Predicting Rates of White Homicide in U.S. Cities, 1990.

	Direct Effect		Indirect Effect via White Poverty	Direct Effect		Indirect Effect via White Joblessness	Direct Effect		Indirect Effect via White Inequality	Direct Effect		Indirect Effect via Total Inequality
	b	β		b	β		b	β		b	β	
Endogenous:												
White Poverty	.066	.38[a]	--	--	--	--	--	--	--	--	--	--
White Joblessness	--	--	--	.055	.43[a]	--	--	--	--	--	--	--
White Inequality	--	--	--	--	--	--	.029	.17[b]	--	--	--	--
Total Inequality	--	--	--	--	--	--	--	--	--	.023	.15	--
Exogenous:												
Manufacturing Ratio	.558	.09	-.09	.801	.13	-.09[a]	.343	.06	-.03[b]	.264	.04	-.03
Low-Skill Whites	.014	.17[b]	.31[a]	.013	.17	.27[a]	.038	.49[a]	-.04[b]	.037	.47[a]	.00
White Youth	-.064	-.28[a]	.14[a]	-.037	-.16[a]	.00	-.031	-.13	-.02	-.033	-.14	.00
Percentage Black	.006	.14	-.04	.002	.04	.14[a]	.002	.04	.05[b]	.001	.02	.08
White Renters	.015	.17[b]	-.02	.025	.30[a]	.01	.010	.12	.04[b]	.013	.16	.02
Population Size	.219	.22[a]	.05	.258	.26[a]	.00	.233	.24[a]	.02	.228	.23[a]	.02
Population Density	-.061	-.09	.02	-.098	-.15	.08[a]	-.062	-.10	.00	-.065	-.10	.00
Rustbelt	-.378	-.24[a]	.00	-.501	-.32	.08[a]	-.341	-.22[a]	.00	-.342	-.22[a]	-.01
Constant	-1.47			-3.75			-2.79			-2.41		
R^2	.473			.465			.414			.408		

[a]P < .05 (two-tailed tests), [b]P<.10 (two-tailed tests).

in Table 4.4, suggesting that the indirect effect via poverty is similar for blacks and whites.

The next results displayed in Table 4.5 reveal the direct and indirect relationships between the manufacturing ratio, white joblessness and white homicide. As in the previous model, the manufacturing ratio does not have a direct effect on white homicide rates. But, there is a strong direct association between white joblessness and white homicide ($b=.055$, $B=.43$, $p < .05$). This direct association, in conjunction with the relationship between the manufacturing ratio and white joblessness ($B=-.20$, $p < .05$) yields an important negative indirect effect of the manufacturing ratio on white homicide ($-.20 * .43 = -.09$, $p < .05$). Thus, the trend of declining manufacturing and expanding service employment has apparently raised white homicide indirectly, by first increasing the percentage of whites who are jobless.

A similar pattern of findings is revealed in the third model of Table 4.5, in which white inequality replaces white joblessness as the key predictor variable. However, the effect of white inequality ($b=.029$, $B=.17$, $p < .10$) appears somewhat more modest than the effect of white joblessness and white poverty presented in the two previous models. While white poverty and white joblessness were the most powerful predictors in the two previous equations, the same is not true for white inequality. In fact, white inequality ranks fourth in terms of magnitude and is significant only at the .10 level. As a consequence, the indirect link between the manufacturing ratio and white homicide via white inequality is less robust ($-.03$, $p < .10$). Thus, while the results from this model

generally conform to theoretical expectations, the support offered is somewhat attenuated.

While the impact of white inequality is relatively modest in model three, low-skill whites has a particularly strong effect on white homicide (b=.038, B=.49, $p < .05$). The higher the proportion of white residents who are high school dropouts, the higher the rate of white homicide. This finding is consistent with expectations and the results of the previous two models. Also as expected, homicide rates among whites are higher in larger cities (b=.233, B=.24, $p < .05$) and lower in cities located in the rustbelt (b=-.341, B=-.22, $p < .05$).

The final model of Table 4.5 presents results from the structural equation with total income inequality substituted for white inequality as the key mediating variable. The results presented here offer no support for theoretical predictions. First, there is not a significant relationship between total inequality and white homicide. Consequently, the indirect effect of the manufacturing ratio via total income inequality is zero. The important predictors of white homicide in this equation are low-skill whites (b=.037, B=.47, $p < .05$), population size (b=.228, B=.23, $p < .05$) and rustbelt (b=-.342, B=-.22, $p < .05$).

Overall, the findings from the structural models presented in Table 4.5 lend partial support to my theoretical predictions. First, measures of economic deprivation among whites are generally good predictors of white homicide. However, the measure of total inequality is not an important predictor of white homicide. Second, the expected indirect link between industrial restructuring and white homicide also is

supported. In three of the four models, there is a better than chance indirect association between the relative size of the manufacturing sector and white homicide. Thus, change in the industrial structure does impact white homicide rates through the effect on more proximate determinants such as poverty, joblessness and within-race inequality. However, my theoretical expectations suggesting that the deleterious effects of industrial restructuring are greater for black than for white city residents are not supported. In fact, the results generally suggest that the full impact has been experienced rather equally by both race groups.

4.2.5 Full Structural Models Predicting Black Robbery Rates

The next table (Table 4.6) shows the findings from the four structural models with black robbery arrest rates as the dependent variable. The first model presents the results from the full structural model in which black robbery is predicted by black poverty, the manufacturing ratio, and the control variables. In terms of my theoretical framework, most noteworthy in this table is the absence of either a significant direct effect of black poverty or an indirect effect of the manufacturing ratio on black robbery. Thus, the expectation that black robbery is a direct function of black poverty and an indirect result of variation in the industrial structure is not bolstered by the findings from this model. Rather, black robbery rates are associated with the percentage black, black youth, black renters, population size and population density.

Model 2 of Table 4.6 presents findings from the structural equation regressing black robbery rates on black joblessness, the manufacturing ratio, and the control variables. Unlike the results from the previous model, the indicator of economic

deprivation in this equation has a significant ($P < .10$) effect on black robbery. A one standard deviation increase in the rate of black joblessness is associated with a one-fifth standard deviation increase in the rate of black robbery. In other words, when joblessness goes up among center-city blacks, the rate of robbery committed by blacks also increases. The combination of the significant relationship between black joblessness and black robbery and the significant relationship between the manufacturing ratio and black joblessness produces a modest but statistically significant ($P < .10$) indirect effect of the manufacturing ratio on black robbery ($.20 * -.21 = -.04$). This indirect effect implies that a decrease in the relative size of the manufacturing base results in a slight increase in the rate of black robbery. This pattern of coefficients supports my expectation regarding the relationship between industrial restructuring and crime.

In addition to the effects of joblessness and the manufacturing sector, black robbery rates are also affected by several of the control variables. Robbery rates are higher in cities where the percentage of renters is higher ($b=.033$, $B=.48$, $p < .05$), when the population is larger ($b=.220$, $B=.27$, $p < .05$), when the population is more dense ($b=.097$, $B=.18$, $p < .10$) and in cities located outside of the rustbelt ($b=-.201$, $B=-.16$, $p < .10$). However, somewhat surprisingly, robbery rates are lower in cities where the percentage black is higher ($b=-.008$, $B=-.24$, $p < .05$), and where there is larger proportion of young residents ($b=-.048$, $B=-.16$, $p < .10$).

Table 4.6: OLS Estimates of Structural Equations Predicting Rates of Black Robbery in U.S. Cities, 1990.

	Direct Effect		Indirect Effect via Black Poverty	Direct Effect		Indirect Effect via Black Joblessness	Direct Effect		Indirect Effect via Black Inequality	Direct Effect		Indirect Effect via Total Inequality
	b	β		b	β		b	β		b	β	
Endogenous:												
Black Poverty	.002	.02	--	--	--	--	--	--	--	--	--	--
Black Joblessness	--	--	--	.017	.20[b]	--	--	--	--	--	--	--
Black Inequality	--	--	--	--	--	--	.007	.04	--	--	--	--
Total Inequality	--	--	--	--	--	--	--	--	--	.009	.07	--
Exogenous:												
Manufacturing Ratio	.123	.02	.00	.206	.04	-.04[b]	.173	.03	-.01	.169	.03	-.02
Low-Skill Blacks	.008	.11	.01	.003	.04	.10[a]	.007	.10	.02	.007	.10	.02
Black Youth	-.057	-.19[a]	.00	-.048	-.16[b]	-.02	-.055	-.18[a]	.00	-.056	-.18[a]	.00
Percentage Black	-.008	-.23[a]	.00	-.008	-.24[a]	.03[b]	-.007	-.21[a]	.01	-.009	-.26[a]	.03
Black Renters	.029	.43[a]	-.01	.033	.48[a]	-.04	.030	.44[a]	.00	.028	.41[a]	.01
Population Size	.253	.31[a]	.00	.220	.27[a]	.03[b]	.256	.32[a]	.00	.241	.30[a]	.01
Population Density	.117	.22[a]	.00	.097	.18[b]	.04	.115	.22[a]	.00	.116	.22[a]	.00
Rustbelt	-.139	-.11	.00	-.201	-.16[b]	.03	-.146	-.12	.01	-.121	-.10	-.01
Constant	.934			.544			.551			.832		
R^2	.403			.424			.407			.405		

[a]P < .05 (two-tailed tests), [b]P<.10 (two-tailed tests).

The third model of Table 4.6 presents estimates from the equation regressing black robbery rates on black inequality, the manufacturing ratio and the set of control variables. The results from this equation are similar to those in the first model of Table 6, in that, neither black inequality nor the manufacturing ratio are significant direct predictors of black robbery. And consequently, there is no indirect association between the manufacturing ratio and black robbery.

The statistically important predictors of black robbery in the third model include black youth, percentage black, black renters, population size, and population density. As expected, black robbery rates are positively associated with black renters, population size and population density. However, as the previous two models have shown, there are unexpected negative effects of black youth and percentage black on black robbery rates.

In the final model of Table 4.6, black robbery is regressed on the nine predictor variables with total inequality replacing black inequality as the key mediating variable. In this instance, neither total inequality nor the manufacturing ratio, have a significant effect on black robbery. Thus, black robbery rates in center cities do not vary with the overall degree of income inequality or the relative size of the manufacturing sector. Instead, black robbery rates are related to black youth, percentage black, black renters, population size and population density.

In sum, the results in Table 4.6 yield limited support for the theoretical prediction that black robbery rates are associated with levels of economic deprivation and the industrial structure of the city. In fact, only one of the four models supports the

theoretical linkage between the relative size of the manufacturing sector, economic deprivation and black robbery. And the estimates from this model reveal tenuous relationships that are significant only at the .10 level. Thus, while the results in Table 4.6 offer some support to the primary theoretical argument, the evidence is not overwhelming.

4.2.6 Full Structural Models Predicting White Robbery Rates

The next table (Table 4.7) presents the results from the four structural models predicting white robbery rates. In the first model, white robbery rates are regressed on white poverty, the manufacturing ratio and control variables. Consistent with expectations, the manufacturing ratio does not have a significant direct effect on white robbery, but there is a significant effect of white poverty on white robbery (b=.038, B=.23, $p < .05$). These results suggest that, among whites, higher robbery rates are associated with higher poverty rates. In addition, the product of the two significant direct associations between the manufacturing ratio and poverty, and poverty and robbery yields a significant indirect relationship between the manufacturing ratio and white robbery (-.06) that is significant at the .05 level (two-tailed test). This implies that when manufacturing sector employment shrinks relative to the service sector, the rate of robbery for white city residents increases. These findings clearly support my expectations.

White robbery rates are also affected by a number of the control variables. Robbery rates tend to be higher in larger cities with a large low-skill population, and

when there is a high percentage of renters. On the other hand, robbery rates tend to be lower in cities with a large percentage of black residents, and a large youth population.

In the next model, white robbery rates are regressed on white joblessness, the manufacturing ratio and controls. Joblessness has a substantial impact on robbery rates for whites (b=.047, B=.38, $p < .05$). In fact, a standard unit increase in joblessness is associated with nearly two-fifths of a standard unit increase in white robbery. This suggests that in cities where there is an abundance of white residents without legitimate employment, there tends to be a high incidence of robbery committed by whites. However, as expected, there is no direct association between the relative size of the manufacturing sector and white robbery. Rather, the effect of the manufacturing ratio on white robbery rates is largely indirect, via white joblessness. Thus, cities that have experienced a decrease in the relative size of the manufacturing sector also have endured an increase in the white robbery rate.

City robbery rates for whites also tend to be greatest where there is a high percentage of low-skill residents (b=.015, B=.20, $p < .10$), a high percentage of renters (b=.045, B=.56, $p < .05$), and a large population (b=.220, B=.23, $p < .05$). Meanwhile, white robbery rates are lower when there is a high percentage of black residents (b=-.008,B= -.20, $p < .05$), a high percentage of residents between the ages of 15 and 24 (b=-.053, B=-.24, $p < .05$), and in rustbelt cities (b=-.280, B=-.19, $p < .05$).

The next model (model 3) shows that white robbery rates are positively associated with within-race income inequality for whites (b=.032, B=.19, $p < .05$). In other words, when income among white residents is highly unequal, there tends to be

Table 4.7: OLS Estimates of Structural Equations Predicting Rates of White Robbery in U.S. Cities, 1990.

	Direct Effect		Indirect Effect via White Poverty	Direct Effect		Indirect Effect via White Joblessness	Direct Effect		Indirect Effect via White Inequality	Direct Effect		Indirect Effect via Total Inequality
	b	β		b	β		b	β		b	β	
Endogenous:												
White Poverty	.038	.23[a]	--	--	--	--	--	--	--	--	--	--
White Joblessness	--	--	--	.047	.38[a]	--	--	--	--	--	--	--
White Inequality	--	--	--	--	--	--	.032	.19[a]	--	--	--	--
Total Inequality	--	--	--	--	--	--	--	--	--	.026	.18[a]	--
Exogenous:												
Manufacturing Ratio	.027	.00	-.06[a]	.356	.06	-.08[a]	.055	.01	-.04[b]	-.019	-.00	-.04[a]
Low-Skill Whites	.023	.30[a]	.19[a]	.015	.20[b]	.24[a]	037	.48[a]	-.04[a]	.035	.46[a]	.00
White Youth	-.068	-.30[a]	.09[a]	-.053	-.24[a]	.01	-.047	-.21[a]	-.02	-.050	-.22[a]	.00
Percentage Black	-.005	-.13[b]	-.03	-.008	-.20[a]	.04[a]	-.009	-.22[a]	.06[a]	-.010	-.24[a]	.09[a]
White Renters	.037	.46[a]	-.01	.045	.56[a]	.01	.032	.39[a]	.04[a]	.035	.43[a]	.02
Population Size	.181	.19[a]	.03	.220	.23[a]	.01	.196	.20[a]	.02	.189	.20[a]	.03
Population Density	.046	.07	.01	.023	.04	.07[a]	.053	.08	.00	.050	.08	.01
Rustbelt	-.174	-.12	.00	-.280	-.19[a]	.07	-.136	-.09	-.01	-.136	-.09	-.02
Constant	-.249			-2.27			-1.70			-1.31		
R^2	.595			.629			.601			.595		

[a]P < .05 (two-tailed tests), [b]P<.10 (two-tailed tests).

high rates of robbery, and conversely, when income is more evenly distributed, robbery rates are lower. In addition, there is an indirect negative relationship between the manufacturing ratio and white robbery. Thus, center cities featuring a relative abundance of manufacturing sector employment are more likely to have lower rates of white robbery than cities where there is a relative paucity of manufacturing employment. The pattern of findings for the control variables in this equation resemble closely the results from the previous white robbery models discussed above.

Finally, model 4 shows that white robbery rates are directly affected by overall income inequality (b=.026, B=.18, $p < .05$). The positive coefficient for this variable suggests that high rates of income inequality produce high rates of robbery among whites. And the combination of this effect and the direct relationship between the manufacturing ratio and total income inequality produces a small but significant relationship between the manufacturing ratio and white robbery rates (-.04, $p < .05$). Other variables directly affecting white robbery rates include low-skill whites, white youth, percentage black, white renters, and population size.

Taken together, the results in Table 4.7 lend strong support to the notion that industrial restructuring is related to crime rates for whites. When stable jobs in the manufacturing sector are plentiful relative to service jobs, rates of robbery tend to be low. This may occur for several reasons. First, a large manufacturing sector stabilizes the labor market by providing predominantly full-time jobs with a great deal of job security. Second, the combination of stable full-time employment and high wages offered by manufacturing industry jobs reduces poverty, joblessness, and income

inequality. This is important because high rates of economic deprivation reduce community social controls and may increase the presence of motivated offenders.

4.2.7 Full Structural Models Predicting Black Burglary Rates

The first model of Table 4.8 shows the effects of black poverty, the manufacturing ratio and the control variables on black burglary. The most notable result here is the lack of a significant relationship between black burglary and either black poverty or the manufacturing ratio. These findings suggest that change in the relative size of the manufacturing ratio and the proportion of black residents below the poverty line results in no real change in the rate of burglary arrests. Thus, model one is clearly not supportive of the proposed theoretical connection between industrial restructuring, economic deprivation and burglary rates.

Model two presents the results from the regression of black burglary rates on black joblessness, the manufacturing ratio and the other predictor variables. Unlike the results from model one, the findings presented here show that black burglary rates are related to the relative size of the manufacturing sector and rates of joblessness among blacks. A one standard deviation rise in the rate of black joblessness is associated with a one-fourth ($B=.26$, $p < .05$) standard deviation rise in black burglary. Thus, cities with higher rates of out-of-work blacks tend to have higher rates of burglary committed by black residents. And the product of the direct relationship between black joblessness and black burglary, along with the direct relationship between the manufacturing ratio and black joblessness ($B=-.21$, $p < .05$) produces a statistically significant indirect

Table 4.8: OLS Estimates of Structural Equations Predicting Rates of Black Burglary in U.S. Cities, 1990.

	Direct Effect		Indirect Effect via Black Poverty	Direct Effect		Indirect Effect via Black Joblessness	Direct Effect		Indirect Effect via Black Inequality	Direct Effect		Indirect Effect via Total Inequality
	b	β		b	β		b	β		b	β	
Endogenous:												
Black Poverty	.004	.08	--	--	--	--	--	--	--	--	--	--
Black Joblessness	--	--	--	.018	.26[a]	--	--	--	--	--	--	--
Black Inequality	--	--	--	--	--	--	.026	.17	--	--	--	--
Total Inequality	--	--	--	--	--	--	--	--	--	.010	.10	--
Exogenous:												
Manufacturing Ratio	.074	.02	-.02	.125	.03	-.05[a]	.216	.05	-.06	.093	.02	-.03
Low-Skill Blacks	.014	.24[a]	.05	.010	.17	.14[a]	.011	.20[b]	.09	.015	.25[a]	.04
Black Youth	.011	.05	.00	.021	.09	-.02	.017	.07	-.01	.013	.05	.00
Percentage Black	-.009	-.33[a]	-.02	-.009	-.35[a]	.04[a]	-.009	-.33[a]	.03	-.010	-.38[a]	.05
Black Renters	.015	.28[a]	-.02	.018	.34[a]	-.05	.017	.31[a]	-.02	.014	.25[a]	.01
Population Size	.046	.07	.00	.014	.02	.04[a]	.045	.07	.01	.035	.05	.02
Population Density	.053	.13	.00	.034	.08	.05	.051	.12	.00	.053	.13	.01
Rustbelt	-.387	-.39[a]	.01	-.444	-.45[a]	.04	-.425	-.43[a]	.04	-.360	-.36[a]	-.02
Constant	3.84			3.49			2.73			3.78		
R^2	.298			.333			.308			.301		

[a]P < .05 (two-tailed tests), [b]P<.10 (two-tailed tests).

relationship between black burglary and the manufacturing ratio (-.05). This effect implies that the a loss of manufacturing jobs and a concomitant increase of service jobs indirectly increases the rate of burglary committed by blacks by first increasing joblessness. These results clearly support the proposed theoretical relationship between a city's industrial structure and crime.

Models three and four present the results from the final two regression equations predicting black burglary. In model three the predictor variables are black inequality, manufacturing ratio and the seven control variables. The results from this equation do not lend any support to the proposed theoretical model. Contrary to expectations, higher levels of income inequality within the black community are not associated with higher rates of burglary. Consequently, there is no indirect association between the manufacturing ratio and black burglary rates. The fourth model of Table 4.8 also fails to yield support my theoretical expectations. Total income inequality is not directly associated with the rate of black burglary. And there is no indirect relationship between the relative size of the manufacturing sector and the incidence of black burglary.

The pattern of effects for the control variables in the models presented in Table 4.8 are fairly consistent with previous results. In general, black burglary rates are positively associated with low-skill blacks and black renters. This suggests that cities with a higher proportion of black high-school dropouts and higher proportion of black renters also tend to have higher rates of burglary compared to cities a lower proportion of black high-school dropouts and a greater proportion of home owners. Meanwhile,

black burglary rates tend to be lower in cities with a high percentage of black residents and in cities located in the rustbelt.

4.2.8 Full Structural Models Predicting White Burglary Rates

Table 4.9 presents the results from four models predicting white burglary rates in the 113 U.S. cities in 1990. The first model presents the results from the structural equation in which white burglary arrest rates are regressed on the matrix of explanatory variables including white poverty, manufacturing ratio, and the seven control variables. The findings clearly support the expected theoretical relationships. White poverty has a significant positive effect on white burglary rates (b=.034, B=.26, $p < .05$). Thus, as poverty increases for whites, burglary rates are also elevated. Moreover, there is a significant negative indirect effect of the manufacturing ratio on white burglary rates (-.06, $p < .05$). This means that white burglary rates tend to increase when there is a decline in the relative availability of manufacturing jobs.

The second model displays a similar pattern of findings. As expected, white burglary rates are directly affected by the prevalence of joblessness among white city residents (b=.044, B=.44, $p < .05$). These effects imply that when the percentage of white residents who are unemployed or have dropped out of the labor force increases, the rate of white burglary also increases. And this association is the strongest in the model.

Also consistent with expectations, there is a substantial indirect effect of manufacturing ratio on white burglary (-.09, $p < .05$). This substantial indirect effect

Table 4.9: OLS Estimates of Structural Equations Predicting Rates of White Burglary in U.S. Cities, 1990.

	Direct Effect		Indirect Effect via White Poverty	Direct Effect		Indirect Effect via White Joblessness	Direct Effect		Indirect Effect via White Inequality	Direct Effect		Indirect Effect via Total Inequality
	b	β		b	β		b	β		b	β	
Endogenous:												
White Poverty	.034	.26[b]	--	--	--	--	--	--	--	--	--	--
White Joblessness	--	--	--	.044	.44[a]	--	--	--	--	--	--	--
White Inequality	--	--	--	--	--	--	.024	.18[b]	--	--	--	--
Total Inequality	--	--	--	--	--	--	--	--	--	.018	.15	--
Exogenous:												
Manufacturing Ratio	.492	.10	-.06[b]	.815	.17	-.09[a]	.456	.09	-.04[b]	381	.08	-.03
Low-Skill Whites	.014	.23	.21[a]	.007	.11	.27[a]	.027	.43[a]	-.04[b]	.026	.42[a]	.00
WhiteYouth	-.021	-.11	.10[a]	-.008	-.05	.01	-.003	-.02	-.02	-.005	-.03	.00
Percentage Black	-.007	-.21[a]	-.03	-.010	-.30[a]	.14[a]	-.010	-.30[a]	.06[b]	-.010	-.31[a]	.08
White Renters	.012	.19[b]	-.01	.019	.30[a]	.01	.008	.12	.04[b]	.010	.16	.02
Population Size	.056	.07	.04	.092	.12	.01	.072	.09	.02	.068	.09	.02
Population Density	.026	.05	.01	.004	.01	.08[a]	.033	.07	.00	.031	.06	.01
Rustbelt	-.412	-.34[a]	.00	-.512	-.42[a]	.08[a]	-.383	-.32[a]	-.01	-.385	-.32[a]	-.01
Constant	3.40			1.51			2.37			2.60		
R^2	.306			.354			.302			.294		

[a]P < .05 (two-tailed tests), [b]P<.10 (two-tailed tests).

suggests that a decrease in the relative size of the manufacturing sector is associated with an increase in the rate of white burglary. Thus, the replacement of manufacturing jobs by service jobs appears to have detrimental consequences for white residents. First, it directly increases the proportion of white residents who are without a job. And in turn, this increase of joblessness is associated with an increase in the rate of burglary committed by whites.

The third model presents results from the equation predicting white burglary rates with white inequality replacing white joblessness as the "endogenous" predictor variable. The effects displayed in this model are supportive of proposed theoretical relationships. White inequality has a positive direct association with white burglary rates (b=.024, B=.18), and manufacturing ratio has a negative indirect association with white burglary rates (-.04). However, the magnitude of these effects are somewhat modest and the parameter estimates are significant only at the .10 level. The most important predictors of white burglary rates in this model are low-skill whites (B=.43, $p < .05$), rustbelt (B=-.32, $p < .05$) and the percentage black (B=-.30, $p < .05$).

In the final model of Table 4.9, total inequality is substituted for white inequality in the regression equation. Results from this model offer no support for theoretical expectations. First, there is no direct relationship between total inequality and white burglary rates. And second, the manufacturing ratio has no indirect impact on white burglary rates via total inequality. Instead, the important explanatory variables in this equation are low-skill whites (B=.42, $p < .05$), percentage black (B=-.31, $p < .05$), and rustbelt (B=-.32, $p < .05$).

In sum, the evidence presented in Table 4.9 supports the theoretical relationship between industrial restructuring and burglary rates for whites. In three of the four models presented, there is a significant negative effect of the manufacturing ratio on white burglary rates. Thus, when manufacturing employment is scarce relative to service employment, white burglary rates tend to be high.

Comparing the results in Tables 4.8 and 4.9, several things are worth mentioning. First, the proposed theoretical relationship between economic restructuring, economic deprivation and crime draws more consistent support from the "white" models than from the "black" models. The results from the equations estimated for the black population (Table 4.8) yield support for my theoretical expectations in only 1 of 4 instances. While, the results from the equations estimated for the white population (Table 4.9), support my theoretical expectations in 3 out of 4 instances. These results imply that while industrial restructuring has an impact on both black and white burglary rates, the transmission of this impact varies by race. For blacks, variation in the relative size of the manufacturing sector affect burglary rates primarily through the impact on the rate of black joblessness. However, for whites, the indirect effect is channeled through a number of indicators of economic deprivation including poverty, joblessness and within-race inequality.

4.3 Summary of Findings

In this chapter, I investigated the cross-sectional relationship between industrial restructuring and race-specific indicators of economic deprivation and crime in 113 American center cities. I began with an analysis of descriptive statistics for the

variables used in the multivariate models. Then I examined multivariate relationships with a series of path models that facilitated the estimation of the proposed direct and indirect theoretical relationships between the variables of interest.

The univariate statistics revealed at least two important findings. The first is that there is a wide racial disparity in rates of economic deprivation and crime among center-city residents. On average, center-city blacks face rates of poverty, joblessness and income inequality that far exceed those of their white counterparts. In addition, black residents are much more likely to be involved in violent and property crime than white residents. Second, the univariate analysis revealed the substantial between city variation in the race-specific measures of economic deprivation and crime. While it is true that, on average, black residents are worse off than their fellow white residents in all 113 cities, the race-gap in deprivation and crime varies considerably from city-to-city. Some cities exhibited relatively low levels of economic deprivation and/or crime among blacks, whites or both. On the other hand, others exhibited extraordinarily high levels of economic deprivation. Thus, while blacks face a number of social and economic disadvantages when compared to whites, the levels of absolute and relative deprivation experienced by black residents of center-cities varies considerably.

Overall, the multivariate models presented in chapter 4 support the proposed theoretical connection between industrial restructuring, economic deprivation and crime. Findings from the "reduced" structural equations support the expectation that the manufacturing ratio is negatively associated with poverty, joblessness, within-race inequality and total inequality (E1). But contrary to expectations, the results from these

equations also reveal that the pattern of findings is nearly identical for blacks and whites (E4).

In the full models predicting homicide, robbery and burglary rates, the results do not support fully the expected theoretical connection, and a number of race-differences are found. The models predicting homicide rates offer the most complete support for the theoretical model. The manufacturing ratio has a significant indirect effect on black homicide in three of four cases. And, an identical pattern exists for whites. Contrary to the models predicting homicide rates, there are clear race-differences in the models predicting robbery and burglary. For blacks, there is a significant indirect association between the manufacturing ratio and robbery in only one of four models. On the other hand, all four models for whites show a significant indirect association.

A similar pattern of findings results from the models predicting race-specific burglary rates. Of the four models predicting black burglary rates, only one offers evidence which supports the hypothesized relationship between the manufacturing ratio, indicators of economic deprivation and burglary. But, three of the four models predicting white burglary rates are consistent with expectations.

In summary, the results from analyses in this chapter suggest that there is a cross-sectional relationship between industrial restructuring, economic deprivation and crime. Between-city variation in the ratio of manufacturing employment to service employment has a direct negative association with poverty, joblessness and income inequality (within-race and total) and an indirect association with homicide, robbery and burglary. In other words, as the manufacturing sector declines (relative to the service

sector) economic deprivation (i.e. poverty, joblessness and income inequality) is raised. And, this increase in economic deprivation works to elevate rates of homicide, robbery and burglary among blacks and whites. However, the path by which industry shifts affect crime is not always identical for blacks and whites. For blacks, the indirect effect of industry change on homicide works via poverty, joblessness, and within-race inequality. But, the indirect effect on black robbery and burglary works only via black joblessness. A graphic summary of these findings is displayed in Figure 4.1.

For whites, the indirect effect of industrial restructuring on homicide and burglary rates is transmitted via poverty, joblessness and within-race inequality. Meanwhile, the indirect impact on robbery rates works through all four indicators of economic deprivation (poverty, joblessness, within-race inequality, total inequality). A graphic summary of these findings for the white population is presented in Figure 4.2.

With regard to my expectation that the effect of industrial restructuring on economic deprivation and crime would be stronger for blacks than for whites, I find little supporting evidence. Rather, I find that variation in the industrial structure has a virtually identical impact on black and white measures of economic deprivation and serious crime. Moreover, the empirical connection between the measures of economic deprivation and crime is more consistent in the analysis for the white population, which is not consistent with my expectations.

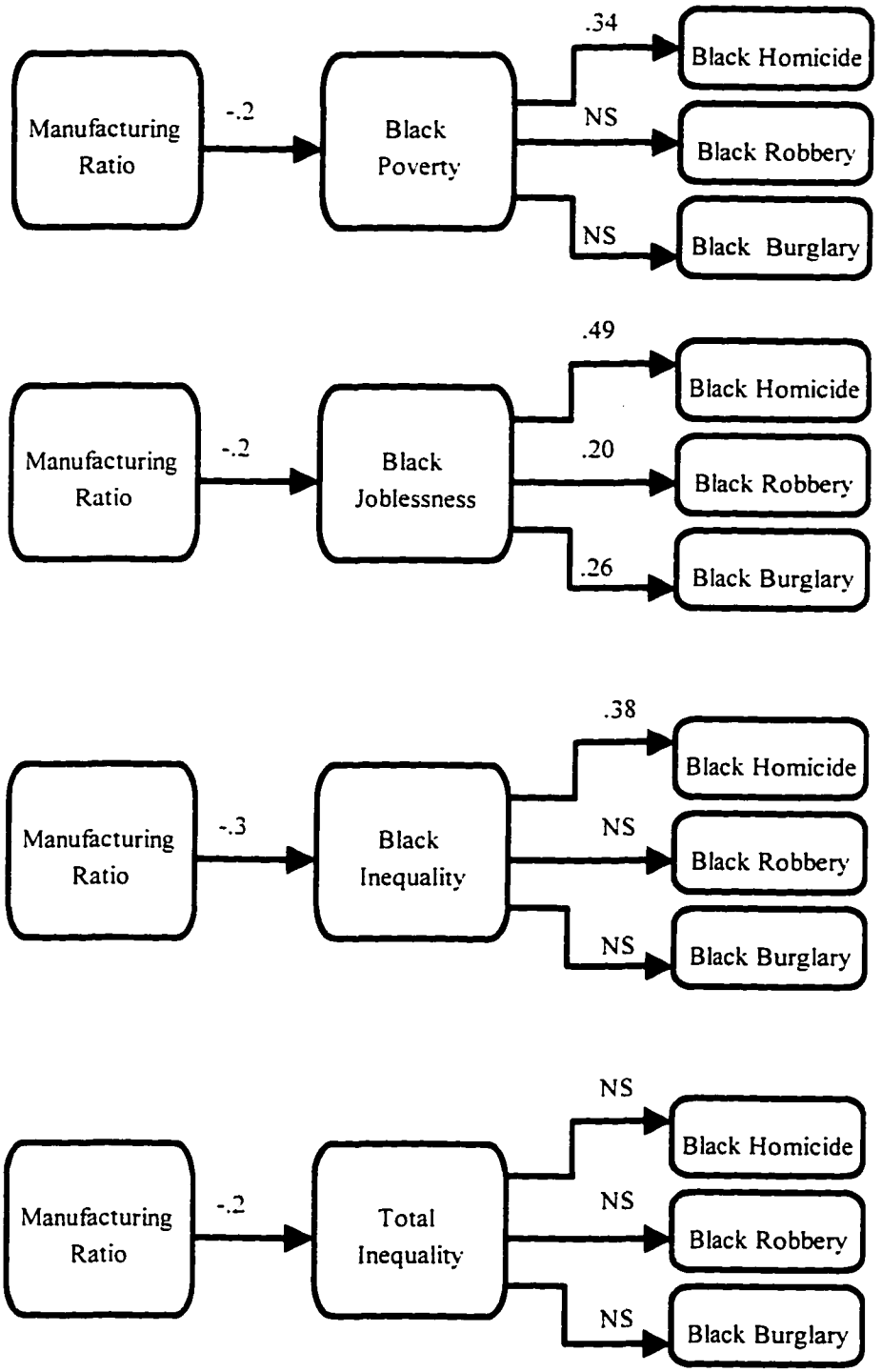

Figure 4.1: Summary of Results from Black Cross-Sectional Models

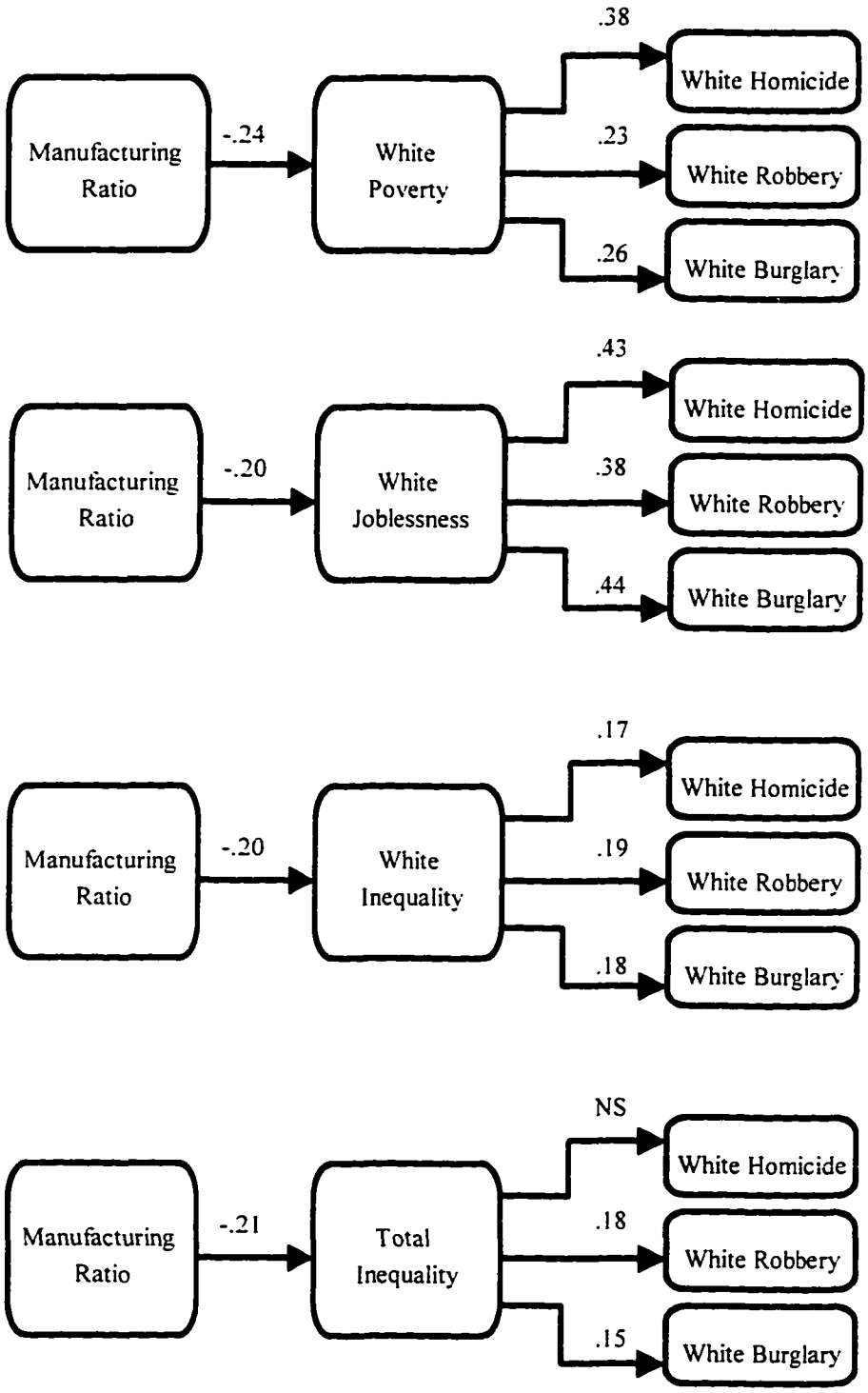

Figure 4.2: Summary of Results from White Cross-sectional Models

CHAPTER 5

LONGITUDINAL MODELS

5.1 Univariate Analysis

In the previous chapter, I presented evidence which supports the hypothesized linkage between industrial restructuring, economic deprivation and crime. However, that analysis was limited to the investigation of cross-sectional data for 1990, and therefore, does not adequately capture the dynamic nature of the industrial restructuring process and its consequences. To address this shortcoming, I extend my analysis by investigating the empirical association between change in a city's industrial structure, change in levels of economic deprivation (i.e. poverty, joblessness and income inequality) and change in crime rates using longitudinal data covering the twenty year period between 1970 and 1990. The analysis begins with a review of descriptive statistics for the change variables utilized in this chapter. I then present results from a series of multivariate structural equations that estimate the direct and indirect effects of change in the relative size of the manufacturing ratio on change in levels of economic deprivation, and homicide, robbery and burglary. I conclude with a summary of findings.

In Table 5.1, I present univariate statistics for the variables used in Chapter 5. Consistent with my theoretical argument, there is a substantial decline in the relative size of the manufacturing sector between 1970 and 1990 (-.177). Thus, on average there is nearly two fewer manufacturing jobs for every service job in 1990 than there was in 1970. However, as the standard deviation (.162) suggests, there is considerable

Table 5.1: Descriptive Statistics for Variables in the Analysis.

Variable	Mean	Std. Dev.
Δ Manufacturing Ratio	-.177	.162
Δ Black Poverty Rate	2.82	8.46
Δ White Poverty Rate	-2.66	3.37
Δ Black Jobless Rate	.578	6.48
Δ White Jobless Rate	-5.75	4.95
Δ Income Inequality (Gini)	2.78	3.56
Δ Low-Skill Blacks (< High School)	-29.68	5.55
Δ Low-Skill Whites (< High School)	-21.22	2.27
Δ Black Youth Aged 15-24	-1.30	1.71
Δ White Youth Aged 15-24	-3.94	2.27
Δ Black Renters	.641	10.05
Δ White Renters	-3.22	8.47
Δ Black Homicide Rate	-.203	29.28
Δ White Homicide Rate	2.84	8.32
Δ Black Robbery Rate	55.48	187.75
Δ White Robbery Rate	24.75	35.71
Δ Black Burglary Rate	-137.17	329.34
Δ White Burglary Rate	21.13	86.00
Δ Percentage Black	6.41	6.14
Δ Population Size	15,790	150,379
Δ Population Density	713	7121

N=113.

variability in this trend. Also consistent with expectations, there has been an increase in the average black poverty rate (2.82) between 1970 and 1990. This trend indicates that the economic situation of blacks has gotten progressively worse in the twenty year period under investigation. On the other hand, the change in the average white poverty rate does not follow the same upward trend. Rather, the average white poverty rate decreased between 1970 and 1990 (-2.66). Thus, despite a decline in the manufacturing sector, a smaller percentage of white city residents were below the poverty line in 1990 than in 1970. However, the standard deviations for change in black and white poverty rates suggests a great deal of inter-city variation in poverty trends.

Trends for black and white joblessness resemble closely those for poverty. On average black joblessness increased slightly (.578) between 1970 and 1990 while white joblessness has decreased (-5.75). But again, standard deviations indicate that the change in black and white joblessness varied tremendously between cities.

Total income inequality, measured by the gini coefficient, shows an increase between 1970 and 1990 (2.78). This is consistent with the argument that industrial restructuring worked to polarize the income distribution in central cities.

An examination of descriptive statistics for the change in crime rates reveals several interesting things. First, on average, there was a slight decline in the black homicide rate (-.203) between 1970 and 1990. However, the standard deviation for this variable (29.28) dwarfs the mean, suggesting tremendous inter-city variation in the change in black homicide rates. The average change in the white homicide rate shows a small increase (2.84) over the previous two decades. But again, the standard deviation

(8.32) far exceeds the mean, demonstrating that there is not one definitive pattern of change in white homicide rates across cities. Contrary to the racial divergence in the trends for homicide, the average robbery rate increased for both blacks and whites during the 1970 to 1990 period. But, again there is substantial inter-city variation in these measures of change. Finally, the average black burglary rate has declined over time (-137.17), while the average white burglary rate shows an increase (21.13).

The descriptives in Table 5.1 also indicate that there has been a sharp decline in the percentage of black and white residents who are high-school dropouts. These statistics reveal the remarkable increase in educational attainment that has occurred in the last twenty years. There also has been a modest decrease in the relative size of the crime-prone youth population (ages 15 to 24) among black and white city residents. Trends in home ownership among black and white city residents show considerable between city variability. Finally, the descriptives suggest that blacks have become a larger proportion of all city residents, while on average, cities have shown an increase in both population size and density between 1970 and 1990.

5.2 Multivariate Analysis

5.2.1 First Stage Structural Equations Predicting Change in Black Economic Deprivation Variables

Table 5.2 presents results from three structural equations in which the change in black poverty, black joblessness and total inequality are regressed on the eight predictor variables. In the first model, change in black poverty is the dependent variable. The

Table 5.2: Regression Estimates of First-Difference Equations Predicting Change in Black Economic Deprivation Variables in U.S. Cities, 1970-1990.

	ΔBlack Poverty		ΔBlack Joblessness		ΔTotal Inequality	
	b	β	b	β	b	β
ΔManufacturing Ratio	-12.84	-.25[a]	-12.68	-.32[a]	-3.67	-.17
ΔLow-Skill Blacks	.630	.41[a]	.385	.33[a]	.232	.36[a]
ΔBlack Youth (15-24)	-.357	-.07	-.161	-.04	-.125	-.06
ΔPercentage Black	.129	.09	.025	.02	.225	.39[a]
ΔBlack Renters	.298	.35[a]	.031	.05	.032	.09
ΔPopulation Size	-1.00^{-05}	-.18[a]	-2.18^{-07}	-.24[a]	4.23^{-08}	.00
ΔPopulation Density	-.326	-.04	-.818	-.12	-.409	-.11
Rustbelt	7.23	.40[a]	-.125	-.01	.311	.04
Constant	15.50		9.41		7.21	
R^2	.618		.412		.367	

[a] $p < .05$; [b] $p < .10$ (two-tailed).

results are generally consistent with the findings from the cross-sectional equations presented in Chapter 4. The change in the manufacturing ratio has a significant negative association with the change in black poverty (b=-12.84, B=-.25, $p < .05$). Thus, the 1970-1990 decline in the relative size of the manufacturing sector is associated with an increase in the black poverty rate during the same period. Other variables having an impact on the twenty-year change in the black poverty rate include the change in low-skill blacks (b=.630, B=.41, $p < .05$), change in black renters (b=.298, B=.35, $p < .05$), change in population size ($b=-1.00^{-5}$, B=-.18, $p < .05$), and rustbelt (b=7.23, B=.40, $p < .05$). These effects suggest that the black poverty rate increased in cities experiencing a growth in the percentage of high school dropouts, an expansion in the percentage of black renters, and in rustbelt cities. On the other hand, the black poverty rate decreased in cities experiencing a growth in population.

In the second model of Table 5.2, the change in black joblessness is substituted for black poverty as the endogenous variable. With regard to the impact of the manufacturing ratio, the findings in this model resemble closely those from the previous one. The larger the decline in the manufacturing ratio, the larger the increase in the rate of black joblessness (b=-12.68, B=-.32, $p < .05$). This suggests that the employment prospects of black center-city residents are harmed by economic restructuring, in which employment in the manufacturing sector has declined in favor of employment in the high- and low-skill service sectors. In addition, the results point to the vital importance of educational credentials in the modern urban economy. The overall employment prospects of black residents are best in cities undergoing the most dramatic decline in

the percentage of high-school dropouts between 1970 and 1990 (Low-skill blacks: b=.385, B=.33, $p < .05$). Finally, the black jobless rate declined in cities that experienced a growth in population since 1970 (Population size: $b=-2.18^{-7}$, B=-.24, $p < .05$).

The final model of Table 5.2 presents results from the structural model predicting total income inequality. The most salient finding revealed by this model is the lack of a significant relationship between change in the manufacturing ratio and change in income inequality. Thus, the increase in total income inequality between 1970 and 1990 does not appear to be directly related to a decline in the relative size of the manufacturing sector.[1] This finding is not consistent with my expectations. The results from this equation suggest that the change in total income inequality between 1970 and 1990 was primarily of function of change in the percentage of low-skill blacks (b=.232, B=.36, $p < .05$), and a change in the percentage black (b=.225, B=.39, $p<.05$).

5.2.2 First-Stage Structural Equations Predicting Change in White Economic Deprivation Variables

In the next table, Table 5.3, the results from the "white" first-stage models predicting economic deprivation are presented. The first model presents results from

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[1] The lack of significance should be interpreted carefully in this instance. The measure of total income inequality is weighted heavily by the white population, which is removed from the race-specific predictor variables in this model. In many ways, it would be better to replace Δ in total income inequality with Δ black income inequality in this model. However, the Census measure of race-specific income changed in the 1970 and 1990 Summary Files. Thus, an analysis of change in race-specific income between 1970 and 1990 using these data is plagued by measurement error.

Table 5.3: Regression Estimates of First-Difference Equations Predicting Change in White Economic Deprivation Variables in U.S. Cities, 1970-1990.

	ΔWhite Poverty		ΔWhite Joblessness		ΔTotal Inequality	
	b	β	b	β	b	β
ΔManufacturing Ratio	-10.78	-.52[a]	-17.89	-.59[a]	-5.73	-.26[a]
ΔLow-Skill Whites	.178	.30[a]	.140	.16[a]	.037	.06
ΔWhite Youth (15-24)	.309	.21[a]	.534	.25[a]	.064	.04
ΔPercentage Black	.118	.22[a]	.182	.23[a]	.153	.26[a]
ΔWhite Renters	.070	.18[a]	.020	.03	-.008	-.02
ΔPopulation Size	2.86^{-06}	.13	-2.76^{-06}	-.08	-1.85^{-06}	-.08
ΔPopulation Density	-.468	-.14	-.150	-.03	-.677	-.19[a]
Rustbelt (Sunbelt)	.091	.01	-.787	-.08	-.303	-.04
Constant	-.277		-4.66		1.79	
R^2	.458		.579		.256	

[a] $p < .05$; [b] $p < .10$ (two-tailed).

the regression of change in white poverty on change in the manufacturing ratio and the statistical controls. The findings are largely consistent with expectations. Change in the manufacturing ratio has a significant negative association with change in white poverty (b=-10.78, B=-.52, p<.05). In other words, white poverty rates have increased in cities where there has been a decrease in the relative size of the manufacturing sector. This finding reiterates the results from the cross sectional equation predicting white poverty presented in Table 4.3 of Chapter 4.

In addition to the impact of the manufacturing ratio, change in white poverty rates between 1970 and 1990 is associated with the change in the percentage of low-skill whites (b=.178, B=.30, p<.05), change in the crime-prone age group (b=.309, B=.21, p<.05), change in the percentage black (b=.118, B=.22, p < .05), change in the percentage of white renters (b=.070, B=.18, p < .05) and change in population density (b=-.468, B=-.14, p < .10). Thus, white poverty rates have increased in cities where the proportion of the population that is low-skill, young, and black has increased and in cities where home ownership and population density have declined.

In the second model of Table 5.3, change in white joblessness is regressed on the set of predictor variables. Four variables have a significant association with change in white joblessness in this equation. First, as expected, white joblessness increased between 1970 and 1990 in cities experiencing a deterioration in the relative size of the manufacturing sector (b=-17.89, B=-.59, p < .05). Thus, consistent with the findings for blacks, the results here indicate that employment prospects of whites are intricately connected to the industrial structure of the city. Second, employment rates are

associated with the educational credentials of the population (b=.140, B=.16, $p < .05$). When the percentage of high school dropouts decreases, joblessness declines, and when the reverse is true, joblessness increases. Third, the change in white joblessness between 1970 and 1990 is a function of the change in the proportion of the population that is between the ages of 15 and 24 (b=.534, B=.25, $p < .05$). In other words, cities that experienced a relative gain in this age-group also saw an increase in the jobless rate. This positive association seems to suggest that a mismatch exists between the number of entry-level workers and the availability of entry-level jobs. Finally, the change in white joblessness is a function of change in the percentage of the city population that is black (b=.182, B=.23, $p < .05$). White employment rates fell in cities where percentage black increased. Although I made no explicit prediction about this relationship, it is an interesting finding and deserves additional research attention. It may suggest that blacks are competing directly with whites for employment, and therefore, are reducing the number of jobs available to members of the labor force who are white.

In the final model of Table 5.3, total income inequality replaces white joblessness as the endogenous variable. Consistent with the two previous models, the findings in the third model reveal a significant association between the manufacturing ratio and income inequality (b=-5.73, B=-.26, $p < .05$). Unlike the results from the black model predicting total income inequality (model 3, Table 5.2), these findings are consistent with the proposed theoretical argument. The loss of manufacturing employment and the concomitant gain of service employment has increased income inequality in U.S. cities.

The change in total income inequality is also associated with a change in percentage black (b=.153, B=.26, $p < .05$), and a change in population density (b=-.677, B-.19, $p < .05$). That is, overall income inequality increased in cities where the percentage black increased and in cities where population density declined.

Overall, the findings in Table 5.2 and Table 5.3 support my theoretical argument. My general expectation that a decline in the relative size of the manufacturing sector increased economic deprivation is supported by 5 of the 6 models presented in these two tables. However, the expectation that the effect of industrial change on economic deprivation would be greater for blacks than whites is not supported. Rather, the impact is virtually identical. In other words, it appears that the effects of the decline in the manufacturing sector are pervasive and not disproportionally absorbed by members of the black community.

5.2.3 Full Structural Models Predicting Change in Black Homicide Rates

Table 5.4 presents the results from three full structural models predicting change in black homicide rates between 1970 and 1990. In the first model, presented in columns 1-3, change in black homicide rates is regressed on change in black poverty, change in the manufacturing ratio, and the first-differenced control variables. The results are largely consistent with findings from the cross-sectional analysis presented in Chapter 4. While change in the relative size of the manufacturing sector (i.e., manufacturing ratio) does not directly affect the change in homicide rates among

Table 5.4: Regression Estimates of First-Difference Equations Predicting Change in Black Homicide Rates in U.S. Cities, 1970-1990.

	Direct Effect		Indirect Effect via ΔBlack Poverty	Direct Effect		Indirect Effect via ΔBlack Joblessness	Direct Effect		Indirect Effect via ΔTotal Inequality
	b	β		b	β		b	β	
Endogenous:									
ΔBlack Poverty	.024	.34[a]	--	--	--	--	--	--	--
ΔBlack Joblessness	--	--	--	.011	.13	--	--	--	--
ΔTotal Inequality	--	--	--	--	--	--	-.018	-.11	--
Exogenous:									
ΔManufacturing Ratio	.102	.03	-.09[a]	-.059	-.02	-.04	-.270	-.07	.02
ΔLow-Skill Blacks	-.009	-.08	.14[a]	.002	.02	.04	.010	.10	-.04
ΔBlack Youth	.009	.02	-.02	.002	.01	-.04	-.002	-.01	.01
ΔPercentage Black	.020	.20[b]	.03	.022	.23[b]	-.01	.027	.28[a]	-.04
ΔBlack Renters	-.005	-.08	.12[a]	.002	.04	.01	.003	.05	-.01
ΔPopulation Size	-9.68^{-8}	-.02	-.06[a]	2.18^{-7}	-.06	-.03	-3.36^{-7}	-.09	.00
ΔPopulation Density	-.101	-.17[b]	-.01	-.099	-.17[b]	-.02	-.116	-.19[a]	.01
Rustbelt	-.232	-.18	.14[a]	-.057	-.05	.00	-.053	-.04	.00
Constant	-.436			-.174			.063		
R^2	.162			.127			.125		

[a] $p < .05$; [b] $p < .10$ (two-tailed tests).

blacks, change in black poverty has a powerful direct association with the dependent variable (b=.024, B=.34, $p < .05$). These results imply that black homicide rates increased between 1970 and 1990 in cities undergoing an elevation of black poverty during the same period. This direct relationship between poverty and black homicide, when combined with the direct association between the manufacturing ratio and black poverty (displayed in Table 5.2), results in a significant indirect effect of change in the manufacturing ratio on change in black homicide (-.09, $p < .05$). Thus, as expected, cities which experienced a decrease in the relative size of the manufacturing sector between 1970 and 1990 saw an increase in the black homicide rate.

Other variables having a direct impact on change in the black homicide rate were percentage black (b=.020, B=.20, $p < .10$) and population density (b=-.101, B=-.17, $p < .10$). These effects imply that black homicide rates increased in cities where there was an increase in the percentage of residents who were black, and a decrease in population density.

In the second model of Table 5.4, the 1970-1990 difference in the black jobless rate replaces black poverty as a primary predictor of change in the black homicide homicide. Consistent with earlier results, there is no significant direct effect of the manufacturing ratio on the change in black homicide. However, no indirect effect via the change in black joblessness exists either. In this case, change in black joblessness has no significant association with black homicide.[2] This implies that the changes in

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[2] Estimation of this equation with alternative estimation strategies (i.e. static-score and residual change) yield different results for black joblessness. In both

black homicide rates are not dependent on changes in the employment patterns of blacks. Given earlier results, this finding is quite unexpected and clearly does not support my expectations. Overall, this model fits the data poorly with only two variables having marginally significant associations with the change in black homicide: percentage black (b=.022, B=.23, $p < .10$): and population density (b=-.099, B=-.17, $p < .10$).

In the final model of Table 5.4, total income inequality replaces black joblessness in the regression equation. But, despite the change in predictor variable, the results are remarkably similar to those presented in model two. Neither the manufacturing ratio nor total income inequality have a significant impact on the first-difference of the black homicide rate. Moreover, only percentage black (b=.027, B=.28, $p < .05$) and population density (b=-.116, B=-.19, $p < .05$) are statistically important predictors in the equation.

Taken together, the results in Table 5.4 offer limited support for the proposed theoretical relationship between industrial restructuring, economic deprivation and crime. While the 1970 to 1990 change in industrial structure has an indirect effect on change in black homicide rates via black poverty, the expected indirect effects via joblessness and income inequality are not found.

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alternative equations, there is a significant association between black joblessness and black homicide. These models are presented in Appendix B.1 and B.2, respectively.

Table 5.5: Regression Estimates of First-Difference Equations Predicting Change in White Homicide Rates in U.S. Cities, 1970-1990.

	Direct Effect		Indirect Effect via ΔWhite Poverty	Direct Effect		Indirect Effect via ΔWhite Joblessness	Direct Effect		Indirect Effect via ΔTotal Inequality
	b	β		b	β		b	β	
Endogenous:									
ΔWhite Poverty	.080	.38[a]	--	--	--	--	--	--	--
ΔWhite Joblessness	--	--	--	.023	.16	--	--	--	--
ΔTotal Inequality	--	--	--	--	--	--	-.010	-.05	--
Exogenous:									
ΔManufacturing Ratio	.623	.14	-.20[a]	.171	.04	-.09	-.300	-.07	.01
ΔLow-Skill Whites	.012	.09	.11[a]	.023	.18[b]	.03	.026	.21[a]	.00
ΔWhite Youth	-.009	-.03	.08[a]	.003	.01	.04	.016	.05	.00
ΔPercentage Black	.010	.09	.08[a]	.016	.13	.04	.021	.18	-.01
ΔWhite Renters	-.003	-.04	.07[a]	.002	.02	.01	.002	.03	.00
ΔPopulation Size	2.57^{-7}	.05	.05	5.50^{-7}	.11	-.01	4.67^{-7}	.10	.00
ΔPopulation Density	-.142	-.20[a]	-.05	-.176	-.24[a]	-.01	-.186	-.26[a]	.01
Rustbelt	.261	.17	.00	.287	.19	-.01	.265	.18	.00
Constant	.668			.754			.664		
R^2	.240			.173			.165		

[a] $p < .05$, [b] $p < .10$ (two-tailed tests).

5.2.4 Full Structural Models Predicting Change in White Homicide Rates

In Table 5.5 results from three full structural models predicting the change in white homicide rates between 1970 and 1990 are displayed. The first model presents results from the regression of change in white homicide rates on first-differenced measures of white poverty, the manufacturing ratio and the seven control variables. Consistent with previous models (and theoretical expectations), the association between change in the industrial structure and white homicide is indirect, operating through change in white poverty which has a direct association with homicide (b=.080, B=.38, $p < .05$). In other words, a decline in the relative size of the manufacturing sector increases the white poverty rate (see model 1, table 5.3), which, in turn, raises rates of white homicide. Thus, a decrease in the manufacturing ratio indirectly increases the white homicide rate by first increasing the rate of white poverty (indirect effect = -.20, $p < .05$). Other than the direct effect of change in white poverty, the only other variable directly associated with the change in the white homicide rate is the change in population density (b=-.142, B-.20, $p < .05$). This effect implies that the white homicide rate increased in cities experiencing a decline in the number of city residents per square mile.

In the next model, change in white joblessness replaces the change in white poverty in the regression equation. With regard to the variables of theoretical importance, the results are quite different from those in presented in the previous model. Here there is no direct impact of change in white joblessness on change in the white

homicide rate.[3] And consequently, the manufacturing ratio has no indirect effect which operates through white joblessness. While these results resemble closely those from the parallel model for blacks (model two, table 5.4), they are inconsistent with my expectations.

The important predictor variables in model two are change in low-skill whites (b=.023, B=.18, $p < .10$) and change in population density (b=-.176, B=-.24, $p < .05$). The coefficients for these variables imply that white homicide rates increased in cities that experienced a rise in the proportion of high-school dropouts and a decline of population density. This latter finding is consistent with the previous model and with all three models predicting change in black homicide, presented in Table 5.4.

The final model of Table 5.5 presents results from the equation in which the change in the white homicide rate is regressed on change in total income inequality, change in the manufacturing ratio, and the seven control variables. As a whole, the results presented here mirror those displayed in model two discussed above. The measure of economic deprivation (the change in total income inequality) has no significant influence on the change in white homicide rates. And consequently, no significant indirect effects via total income inequality are possible. Thus, the expected

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[3] As in the parallel model for blacks, the results using the alternative estimation strategies yield different results. Both the conditional differences (or static-score) and residual change models reveal a significant positive association between white joblessness and white homicide. These results are presented in Appendix B.3 and B.4, respectively.

connection between industrial restructuring, economic deprivation and crime is not supported by the results from this structural model.

In sum, the findings in Table 5.5 follow closely those from Table 5.4. And together these six regression models offer limited support for my theoretical argument. The change in homicide rates between 1970 and 1990 is indirectly influenced by change in a city's industrial structure. However, this influence is channeled primarily through the change in poverty, which is directly associated with the change in homicide rates. On the other hand, the indirect effect of industrial restructuring on homicide does not appear to operate through change in other dimensions of economic deprivation such as the jobless rate and overall income inequality.[4]

5.2.5 Full Structural Models Predicting Change in Black Robbery Rates

In the next set of analyses (displayed in Table 5.6 and Table 5.7), I extend my investigation of the link between industrial restructuring, economic deprivation and crime by analyzing the predictors of the twenty-year change in robbery rates for blacks and whites in center cities. In Table 5.6, I present results from three structural equations predicting the change in black robbery rates between 1970 and 1990. In the first model presented, inter-city variation in the change in black robbery rates is regressed on the change in black poverty, change in the manufacturing ratio and the seven control

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[4] However, as discussed in footnotes 2 and 3, the findings with regard to joblessness depend upon the way change is measured and estimated. Given these divergent findings, and the significant effect of joblessness on homicide in the cross-sectional analyses, I strongly caution against concluding that joblessness does not directly affect homicide, and that the indirect effect of the manufacturing ratio on homicide is not transmitted via the rate of joblessness.

Table 5.6: Regression Estimates for First-Difference Equations Predicting Change in Black Robbery Rates in U.S. Cities, 1970-1990.

	Direct Effect		Indirect Effect via ΔBlack Poverty	Direct Effect		Indirect Effect via ΔBlack Joblessness	Direct Effect		Indirect Effect via ΔTotal Inequality
	b	β		b	β		b	β	
Endogenous:									
ΔBlack Poverty	.005	.08	--	--	--	--	--	--	--
ΔBlack Joblessness	--	--	--	.024	.30[a]	--	--	--	--
ΔTotal Inequality	--	--	--	--	--	--	.015	.10	--
Exogenous:									
ΔManufacturing Ratio	.348	.11	-.02	.588	.18	-.10[a]	.340	.11	-.02
ΔLow-Skill Blacks	-.005	-.05	.03	-.011	-.12	.10[a]	-.005	-.06	.04
ΔBlack Youth	.052	.17[b]	-.01	.054	.18[b]	-.01	.052	.17[b]	-.01
ΔPercentage Black	.017	.20[b]	.01	.017	.20[b]	.01	.014	.17	.04
ΔBlack Renters	-.004	-.08	.03	-.003	-.06	.02	-.003	-.06	.01
ΔPopulation Size	6.66^{-8}	.02	-.01	2.63^{-7}	.08	-.07[a]	1.61^{-8}	.00	.00
ΔPopulation Density	.008	.02	.00	.026	.05	-.04	.013	.02	-.01
Rustbelt	-.257	-.23	.03	-.218	-.20	.00	-.226	-.20	.00
Constant	.140			-.008			.108		
R^2	.090			.140			.095		

[a] $p < .05$; [b] $p < .10$ (two-tailed tests).

variables. The pattern of estimates in this model diverge from the previous models predicting change in homicide rates. In this case, change in black poverty has no effect on the change in black robbery rates.[5] And the absence of thissignificant effect results in a nonsignificant indirect association between change in the robbery rates and change in the manufacturing ratio. Thus, the 1970 to 1990 change in black robbery rates is not a function of black poverty rates. Furthermore, any indirect association that may exist between the manufacturing ratio and black robbery does not appear to be transmitted by black poverty rates.

Overall, this structural model fits the data poorly (R^2=.09) and there are only two variables that attain marginal statistical importance. First, the twenty-year change in the percentage of the population in the 15-24 year age group is positively associated with the change in robbery rates (b=.052, B=.17, $p < .10$). Second, change in black robbery rates is affected by the twenty year change in the percentage black (b=.017, B=.20, $p < .10$). These relationships imply that black robbery rates increased in cities that also experienced an increase in the proportion of the population that is young and black.

The second model presents results from the unconditional first-difference regression equation in which black joblessness replaces black poverty as the primary predictor variable. The findings from this model are largely consistent with theoretical

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[5] A significant effect of the change in black poverty on the change in black robbery is present in the residual change equation. These findings are presented in Appendix B.5. However, the conditional difference (or static-score) equation is consistent with the findings presented above. That is, there is no significant relationship between change in black poverty and change in black robbery rates.

predictions. First, there is a relatively strong and statistically significant effect of the change in black joblessness on the change in black robbery rates (b=.024, B=.30, $p < .05$). In other words, black robbery rates increased in cities where unemployment and labor force nonparticipation rates rose between 1970 and 1990. And, while change in a city's industrial structure does not directly affect change in the black robbery rate, there is a substantial indirect association between the manufacturing ratio and black robbery (-.10, $p < .05$). This association suggests that black robbery rates were exacerbated by the loss of manufacturing employment. Thus, consistent with my theoretical argument, the shift from manufacturing to service employment indirectly increased crime rates, by first increasing economic deprivation.

In the final model of Table 5.6, change in black robbery is regressed on total income inequality, the manufacturing ratio, and the set of controls. The results here resemble those in model one, and therefore, provide little empirical evidence consistent with my expectations. Twenty-year change in overall income inequality is not related to change in black robbery rates. And consequently, there is no indirect influence of the manufacturing ratio on black robbery via total income inequality. Overall, this model provides of poor fit to the data with the change in black youth being the only variable that has a marginally significant association with black robbery rates (b=.052, B=.17, $p < .10$).

In sum, the results in Table 5.6 lend some support for the proposed theoretical relationship between industrial restructuring and crime. However, the influence of industrial structure change on black robbery is transmitted primarily through black

joblessness. There are no indirect effects via black poverty or total income inequality. Thus, a decrease in manufacturing employment (relative to service employment) increases black robbery indirectly, by first increasing the percentage of black residents who are without legitimate work.

5.2.6 Full Structural Models Predicting Change in White Robbery Rates

Table 5.7 displays results from the three "full" structural equations predicting the change in white robbery rates between 1970 and 1990. In the first model, change in white robbery is regressed on changes in white poverty, the manufacturing ratio and the control variables. The most salient feature from this model is the absence of statistical significance for the variables of primary theoretical interest. Note that neither white poverty, nor the manufacturing ratio have a significant association with change in white robbery rates.[6] Rather, the twenty-year change in white robbery rates is a function of change in the relative size of the crime prone age-group, and the percentage black. These findings indicate that cities that experienced an increase in white robbery rates between 1970 and 1990 were ones where the relative size of the youth population and the proportion black increased.

In the second model, white joblessness replaces white poverty as a primary predictor of the change in white robbery rates. But, the results are essentially the same.

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[6] A significant effect of white poverty on white robbery is found in the conditional difference and residual change models. These results are presented in Appendix B.6 and B.7, respectively. Given these divergent results, conclusion about this relationship are somewhat tenuous.

Table 5.7: Regression Estimates of First-Difference Equations Predicting Change in Rates of White Robbery in U.S. Cities, 1970-1990.

	Direct Effect		Indirect Effect via ΔWhite Poverty	Direct Effect		Indirect Effect via ΔWhite Joblessness	Direct Effect		Indirect Effect via ΔTotal Inequality
	b	β		b	β		b	β	
Endogenous:									
ΔWhite Poverty	.033	.18	--	--	--	--	--	--	--
ΔWhite Joblessness	--	--	--	.026	.22	--	--	--	--
ΔTotal Inequality	--	--	--	--	--	--	.016	.10	--
Exogenous:									
ΔManufacturing Ratio	.451	.12	-.09	.573	.15	-.13	.194	.05	-.03
ΔLow-Skill Whites	.009	.08	.05	.011	.10	.04	.014	.13	.01
ΔWhite Youth	.055	.21[a]	.04	.051	.19[b]	.06	.064	.24[a]	.00
ΔPercentage Black	.019	.20[b]	.04	.018	.19	.05	.021	.21[b]	.03
ΔWhite Renters	-.006	-.09	.03	-.004	-.06	.01	-.004	-.05	.00
ΔPopulation Size	3.60^{-7}	.09	.02	5.26^{-7}	.13	-.02	4.83^{-7}	.12	.03
ΔPopulation Density	.029	.05	-.03	.018	.03	-.01	.025	.04	-.02
Rustbelt	.177	.14	.00	.200	.16	-.02	.184	.14	.00
Constant	.897			1.01			.860		
R^2	.179			.181			.168		

[a] $p < .05$; [b] $p < .10$ (two-tailed tests)

White joblessness has no significant association with the white robbery rate.[7] And accordingly, the white robbery rate is not indirectly affected by change in industrial structure. Thus, this model lends no empirical support to the expected relationship between industrial restructuring and crime. In fact, the model provides a poor fit to the data, with the change in whites aged 15-24 being the only variables having any significant association with change in white robbery rates.

The final model of Table 5.7 generally mimics the pattern of findings observed previously. The indicator of economic deprivation in this equation, total income inequality, is not associated with white robbery rates. Consequently, there is no indirect effect of the manufacturing ratio on robbery via income inequality. Clearly, these findings fail to support my expectations. But, consistent with the previous models (especially model one), white robbery rates increased in cities that experienced a growth in the percentage of the population that is young and African American.

To summarize, the findings in Tables 5.6 and 5.7 offer only limited support for the link between industrial restructuring and robbery rates. For blacks, a decline in the relative size of the manufacturing sector has an indirect effect on robbery rates which operates through joblessness. In other words, cities where the manufacturing sector declined experienced an increased in black joblessness and black robbery rates between 1970 and 1990. However, for whites, the full-difference models provides little evidence

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[7] The conditional difference model yields a significant effect of white joblessness on white robbery rates. These findings are displayed in Appendix B.8.

indicating that change in robbery rates between 1970 and 1990 are due to changes in industrial structure, poverty, joblessness or income inequality.

5.2.7 Full Structural Models Predicting Change in Black Burglary Rates

Table 5.8 displays results from the full structural equation models predicting the change in black burglary rates. The results from the first equation, presented in the first three columns, provide no supporting evidence for the expected theoretical relationship between industrial restructuring and crime. Rather, change in black poverty has no real impact on change in black burglary rates.[8] Moreover, the expected indirect association between the manufacturing ratio and black burglary, operating through black poverty is zero. The overall lack of significant effects is the most salient feature of this equation as no predictor variables attain statistical significance at even the $p < .10$ level. Thus, this model provides a poor fit to the observed data.

A review of the results presented in the second model in Table 5.8 reveals a similar pattern. Despite the replacement of black poverty with black joblessness in the model, there is an overall absence of statistical significance among the predictors. None of the variables of theoretical importance, nor any of the control variables have an impact on the change in black burglary rates between 1970 and 1990.

The final model reveals a similar picture. The weak association between total income inequality and the change in black burglary rates is not significant.

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[8] The residual-score equation produces difference results. Using this alternative method of modeling change, the change in black poverty has the expected positive effect on the residual change in black burglary rates. Findings from this equation are presented in Appendix B.9.

Table 5.8: Regression Estimates of First-Difference Equations Predicting Change in Black Burglary Rates in U.S. Cities, 1970-1990.

	Direct Effect		Indirect Effect via ΔBlack Poverty	Direct Effect		Indirect Effect via ΔBlack Joblessness	Direct Effect		Indirect Effect via ΔTotal Inequality
	b	β		b	β		b	β	
Endogenous:									
ΔBlack Poverty	.006	.10	--	--	--	--	--	--	--
ΔBlack Joblessness	--	--	--	.011	.15	--	--	--	--
ΔTotal Inequality	--	--	--	--	--	--	.005	.04	--
Exogenous:									
ΔManufacturing Ratio	.473	.16	-.03	.537	.18	-.05	.416	.14	-.01
ΔLow-Skill Blacks	-.012	-.14	.04	-.013	-.15	.05	-.009	-.11	.01
ΔBlack Youth	.030	.11	-.01	.030	.11	-.01	.028	.10	.00
ΔPercentage Black	.007	.10	.01	.008	.10	.00	.007	.09	.02
ΔBlack Renters	-.001	-.01	.04	.001	.02	.01	.001	.02	.00
ΔPopulation Size	4.15^{-7}	-.13	-.02	3.61^{-7}	-.12	-.04	4.74^{-7}	-.15	.00
ΔPopulation Density	.035	.07	.00	.042	.09	-.02	.035	.07	.00
Rustbelt	-.226	-.23	.04	-.182	-.18	.00	-.185	-.19	.00
Constant	-.422			-.435			-.367		
R^2	.103			.113			.100		

[a] $p < .05$; [b] $p < .10$ (two-tailed tests).

consequently, there is no significant indirect effect of the manufacturing ratio on the change in black burglary rates. Moreover, none of the control variables prove to be important predictors of black burglary rates.

Thus, the evidence offered in Table 5.8 is clearly not supportive of the proposed theoretical relationship between industrial restructuring, economic deprivation and burglary rates. In fact, no supporting evidence can be derived from these three models. It appears that change in the relative size of the manufacturing sector between 1970 and 1990 had little impact on the change in black burglary rates during the same period. These results are somewhat contradictory to the cross-sectional results presented in the previous chapter and to the results from the residual-score change models (see appendix). In those two analyses, industrial restructuring had an indirect effect on burglary rates that operated via black joblessness, and black poverty, respectively.

5.2.8 Full Structural Models Predicting Change in White Burglary Rates

Table 5.9 shows results from the three full models predicting twenty-year change in white burglary arrest rates. In the first model, white burglary rates are regressed on white poverty, the manufacturing ratio and the seven control variables. Contrary to the results from the parallel model for blacks (model 1, table 5.8), the findings presented here provide strong empirical support for the theoretical linkage between industrial restructuring and burglary rates. A decrease in the relative size of the manufacturing sector between 1970 and 1990 indirectly increases white burglary rates (-.16, $p < .05$), by first increasing white poverty, which has a substantial direct effect

Table 5.9: Regression Estimates of First-Difference Equations Predicting Change in White Burglary Rates in U.S. Cities, 1970-1990.

	Direct Effect		Indirect Effect via ΔWhite Poverty	Direct Effect		Indirect Effect via ΔWhite Joblessness	Direct Effect		Indirect Effect via ΔTotal Inequality
	b	β		b	β		b	β	
Endogenous:									
ΔWhite Poverty	.044	.30[a]	--	--	--	--	--	--	--
ΔWhite Joblessness	--	--	--	.014	.15	--	--	--	--
ΔTotal Inequality	--	--	--	--	--	--	.008	.06	--
Exogenous:									
ΔManufacturing Ratio	.383	.12	-.16[a]	.172	.06	-.09	-.042	-.01	-.02
ΔLow-Skill Whites	.004	.04	.09[a]	.010	.11	.02	.011	.13	.00
ΔWhiteYouth	.007	.03	.06[a]	.013	.06	.04	.020	.09	.00
ΔPercentage Black	.004	.05	.07[a]	.006	.08	.03	.008	.10	.02
ΔWhite Renters	-.005	-.09	.05[a]	-.003	-.05	.01	-.002	-.04	.00
ΔPopulation Size	6.36^{-8}	.02	.04	2.29^{-7}	.07	-.01	2.03^{-7}	.06	-.01
ΔPopulation Density	.024	.05	-.04[a]	.006	.01	-.01	.009	.02	-.01
Rustbelt	.098	.09	.00	.113	.11	-.01	.104	.10	.00
Constant	.291			.346			.265		
R^2	.109			.070			.063		

[a] $p < .05$; [b] $p < .10$ (two-tailed tests).

(b=.045, B=.30, $p < .05$) on burglary rates. These findings are largely consistent with those from the 1990 cross-sectional analysis presented in Chapter 4.

In the second model of Table 5.9, change in white joblessness replaces change in white poverty as the primary predictor variable. And, the results are quite different. In this case, there is no direct association between white joblessness and white burglary rates.[9] Consequently, the estimated indirect effect of the manufacturing ratio is not statistically significant. Thus, to the extent that industrial restructuring affected white burglary rates, its influence is not transmitted via the change in white joblessness. Overall, the results in model two resemble closely those from the parallel model for blacks (model 2, Table 5.8), in that none of the predictors have a significant impact on the dependent variable.

In the final model of chapter 5, I regressed the change in white burglary rates on total income inequality, the manufacturing ratio and the set of control variables. Consistent with the previous model and the parallel model for blacks, the set of predictor variables have no significant association with the change in white burglary rates between 1970 and 1990. From a theoretical standpoint this implies that the empirical connection between industrial restructuring and white burglary rates does not involve total income inequality.

To summarize, the findings in Table 5.9 lend some support to the hypothesized theoretical model. However, the impact of industrial restructuring on white burglary

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[9] There is a significant effect in the conditional change (i.e. static-score) model. These findings are presented in Appendix B.10.

rates does not operate through each dimension of economic deprivation. Rather, all influence seems to be channeled through white poverty, which is directly related to burglary rates. Thus, change in industrial structure affects white burglary rates indirectly, by first altering the level of poverty in white communities.

5.3 Summary of Findings

In the preceding pages, I have described findings from my longitudinal analysis of the association between urban economic restructuring, economic deprivation, and crime for 113 major cities in the United States. I began with a review of univariate statistics that describe the 1970 to 1990 change in the independent and dependent variables of interest. I then presented findings from a series of structural equations that estimated the direct and indirect effects of change in a city's industrial structure on rates of economic deprivation and serious crime.

The univariate statistics presented reveal a number of interesting findings. First, the average change in the manufacturing ratio supports the expectation that there has been a sharp transition from manufacturing to service employment in major U.S. cities between 1970 and 1990. This suggests that the availability of high-quality low-skill employment has declined substantially in the urban core. While changes in the industrial structure are evident from the mean change in the manufacturing ratio, the impact of this transition on rates of economic deprivation and rates of crime is not clearly revealed by an analysis of the mean changes for these variables. For instance, while the average rate of poverty, joblessness and robbery has increased among black city residents, the average black homicide and burglary rates have declined. Moreover,

while the average white rates of poverty and joblessness have decreased over time, there has been an increase in white homicide, robbery and burglary rates.

Given my theoretical expectations, the findings noted above appear somewhat contradictory. However, an examination of standard deviations for each of the variables discussed above reveal is quite instructive. The standard deviation for nearly all of these variables is substantially larger than their mean. Thus, change in economic deprivation and serious crime varies tremendously between cities, variability that is not revealed through an examination of means.

Although descriptive statistics do not provide clear support for the my theoretical expectations, the results from the multivariate analyses presented in Chapter 5 offer substantial supporting evidence for my major theoretical expectations (especially E1-E3). The multivariate models presented suggest that the transition from manufacturing to service sector employment directly increased indicators of economic deprivation, and indirectly raised rates of crime in center-cities. More specifically, I found that a decline in the relative size of the manufacturing sector increases rates of poverty and joblessness for both black and white city residents. In addition, results from the models estimated for the white population suggest that the total income inequality is also elevated by such changes in city industrial composition. And the increase in poverty, joblessness and income inequality produced higher rates of homicide and robbery among blacks, and higher rates of homicide and burglary among

whites.[10] A graphical summary of these findings for blacks and white are presented in Figures 5.1 and 5.2, respectively.

In summary, the multivariate models support my primary theoretical expectations that economic restructuring indirectly increased rates of crime by first increasing economic deprivation. However, my secondary expectations that there would be a racial difference in the deleterious consequences of industrial change (E4 and E5) are not supported by my findings. The analysis reveals that change in the relative size of the manufacturing sector produced similar outcomes for black and whites. Contrary to expectations, both black and white city residents experienced an elevation of economic deprivation and crime rates as a result of the transition from manufacturing to service employment.

Overall, the findings from the longitudinal analyses reiterate the story told in Chapter 4. A decrease in the relative size of the manufacturing sector indirectly raised city homicide, robbery and burglary rates by first increasing rates of poverty, joblessness and income inequality.

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[10] As noted earlier, evidence from alternative estimation strategies indicate that black burglary and white robbery rates have increased with the elevation of economic deprivation measures. These findings are displayed in appendices B1-B10.

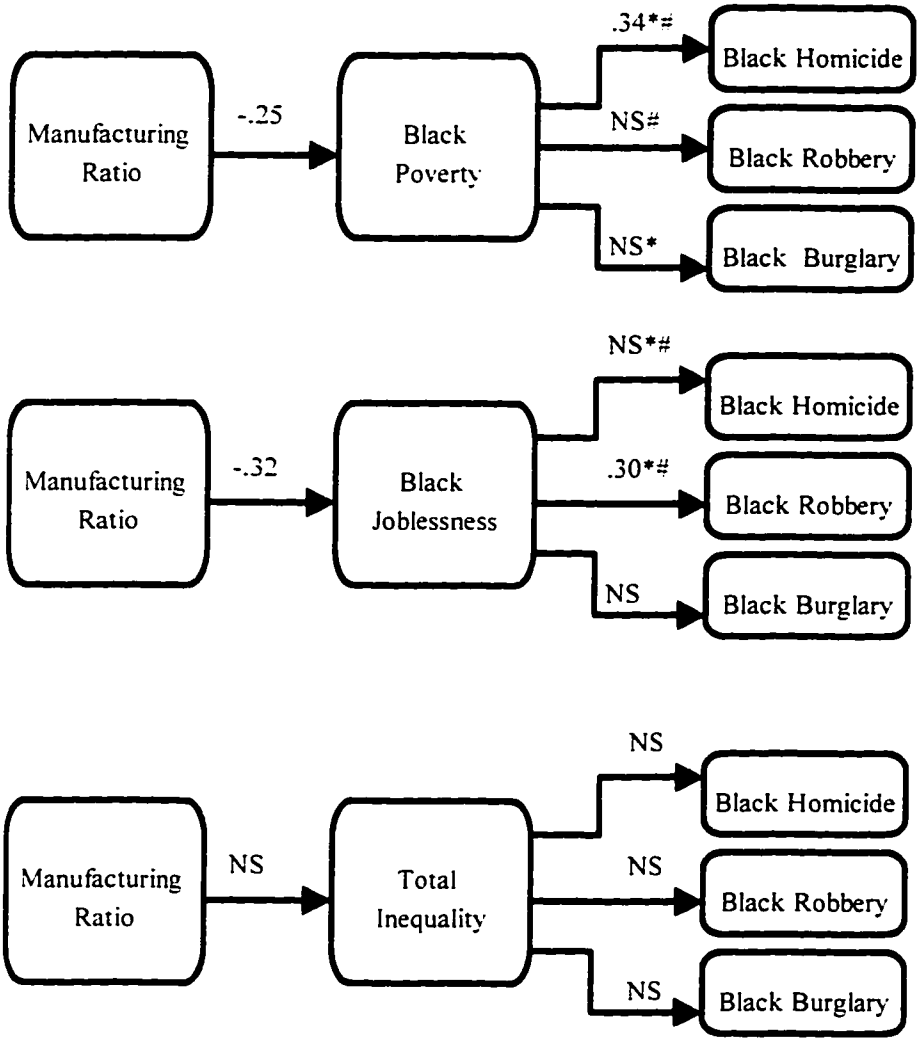

Figure 5.1: Summary of Results from Black First-Difference Models

* Significant effect is found in the conditional-difference (static-score) equation.
# Significant effect is found in the residual-score equation.

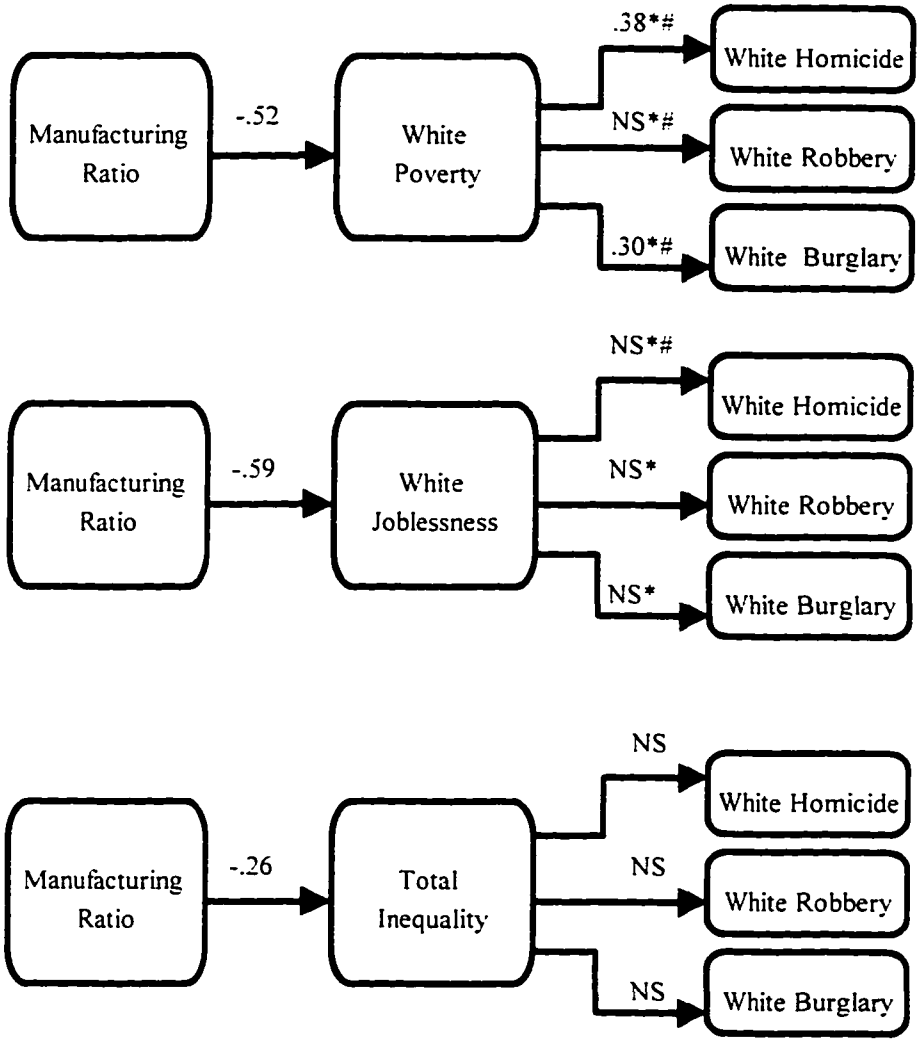

Figure 5.2: Summary of Results from White First-Difference Models

* Significant effect is also found in the conditional-difference (static-score) equation.
# Significant effect is also found in the residual-score equation.

CHAPTER 6

DISCUSSION AND CONCLUSION

The research presented in this project represents the most comprehensive analysis of the theoretical and empirical connection between urban industrial restructuring and crime. Drawing upon previous research in the areas of urban sociology, social stratification and criminology, I have posited an argument which suggests that changes in black and white homicide, robbery and burglary rates are indirectly associated with changes in the industrial base of cities. I contend that the decline of the manufacturing sector and the concomitant increase of the service sector has dampened the economic prospects for many city residents with lower-levels of educational attainment. And this reduction of economic opportunity has, in turn, resulted in an increase of criminal activity.

I suggest that in the presence of widespread economic deprivation, the vitality of existing community organizations is attenuated, and the capacity of the community to form ad hoc organizations aimed at curtailing deviance is severely hindered. Thus, to the extent that change in the industrial structure of cities has increased economic deprivation, it also has reduced community social control, resulting in higher rates of crime. In addition, I have argued that the impact of industrial restructuring on economic deprivation and crime should be stronger among city blacks than among city whites. This contention is based upon two things. First, relative to their white counterparts, center-city blacks have fewer educational credentials and therefore, are presumably more vulnerable to the loss of stable low-skill employment in the goods-producing

sector. Second, due to institutional discrimination, blacks are at the end of the labor queue and therefore, are more likely to be the first workers exposed to layoffs when manufacturers downsize.

Using cross-sectional and longitudinal data from the U.S. Bureau of the Census and the Federal Bureau of Investigation, I estimated a number of structural equation models to assess the merit of the theoretical model that I propose. Results from these analyses generally support my expectations. A decline in the relative size of the manufacturing sector is a direct predictor of poverty, joblessness and income inequality and an indirect predictor of homicide, robbery and burglary. However, the results vary somewhat by method of analysis, and race.

In the cross-sectional analysis, the relative size of the manufacturing sector has a significant impact on all measures of economic deprivation (i.e. poverty, joblessness, within-race income inequality, and total inequality) for blacks and whites. Moreover, a significant indirect effects on all three measures of crime also are found for both race-groups. However, race-differences exist in the mechanisms by which the industrial structure affects the different criminal offenses. While the indirect impact of the manufacturing ratio on homicide works similarly for blacks and whites (via poverty, joblessness, and within-race inequality), the indirect effect on robbery and burglary rates differs by race. For blacks, the effect of the manufacturing ratio is mediated by joblessness, but for whites all four measures of economic deprivation act as mediators.

In the longitudinal models estimated for the black population, the manufacturing ratio has a direct effect on poverty and joblessness, but no significant effect on total

income inequality. In the models estimated for the white population, poverty, joblessness and total income inequality are all negatively affected by change in the relative size of the manufacturing sector. These findings are generally consistent with the results from the cross-sectional analysis and my stated expectations.

Estimates of indirect effects from the unconditional first-difference models presented in Chapter 5 are generally consistent with my expectations. The manufacturing ratio has a significant indirect effect on the black homicide rate via black poverty, and a significant indirect effect on the black robbery rate via black joblessness. However, no indirect association with black burglary is found in the unconditional differences model.[1]

Unconditional difference models for whites yield a slightly different pattern of significant effects. In this case, the manufacturing ratio is indirectly related to white homicide and white burglary rates via white poverty. But, no indirect association is found between change in the manufacturing ratio and change in white robbery rates.[2] A summary of the indirect effects of the manufacturing ratio on homicide, robbery and burglary rates for blacks and whites are presented in Table 6.1 and Table 6.2, respectively.

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[1] However, as noted in Chapter 5, a significant indirect effect via black poverty is found when the model is estimated by the conditional difference or static-score method.

[2] Significant indirect effects of the manufacturing ratio on white robbery are found using the conditional differences and/or residual-score methods.

Table 6.1: Summary of Indirect Effects of the Manufacturing Ratio on Black Crimes Rates by Method of Estimation.

	Black Homicide				Black Robbery				Black Burglary			
	Via Poverty	Via Joblessness	Via Within Inequality	Via Total Inequality	Via Poverty	Via Joblessness	Via Within Inequality	Via Total Inequality	Via Poverty	Via Joblessness	Via Within Inequality	Via Total Inequality
Cross-sectional	*	*	*			*				*		
Unconditional Difference	*		n/a			*	n/a				n/a	
Conditional Difference	*	*	n/a				n/a		*		n/a	
Residual-Score	*	*	n/a		*	*	n/a				n/a	

* Significant indirect effect found.
n/a: Within-race inequality not available in change analyses.

Table 6.2: Summary of Indirect Effects of the Manufacturing Ratio on White Crimes Rates by Method of Estimation.

	White Homicide				White Robbery				White Burglary			
	Via Poverty	Via Joblessness	Via Within Inequality	Via Total Inequality	Via Poverty	Via Joblessness	Via Within Inequality	Via Total Inequality	Via Poverty	Via Joblessness	Via Within Inequality	Via Total Inequality
Cross-sectional	*	*	*		*	*	*	*	*	*	*	*
Unconditional Difference	*		n/a				n/a		*		n/a	
Conditional Difference	*	*	n/a		*	*	n/a		*	*	n/a	
Residual-Score	*	*	n/a		*		n/a		*		n/a	

* Significant indirect effect found.
n/a: Within-race inequality not available in change analyses.

A number of conclusions can be drawn from my research findings. The first conclusion is that the shift from a manufacturing to a service based economy increased the extent of poverty, unemployment, and income inequality in major cities of the United States. Thus, as expected (expectation 1), the decline in the manufacturing base experienced in most major cities in the United States (particularly those in the northeast and midwest) over the previous 25 years has exacerbated economic dislocation. Most likely this effect has occurred because low-skill city residents have become increasingly disadvantaged in the increasingly high-tech urban labor market. The loss of manufacturing employment removed a primary opportunity structure for city residents with low-levels of educational attainment. Moreover, the jobs that have replaced manufacturing have exacerbated rather than alleviating, the problem. This is because the jobs in the growing sectors of the economy either require educational credentials that put them out of reach for undereducated workers, or require little education but lack the stability and pay of jobs in manufacturing.

A second conclusion is that changes in poverty, joblessness, and income inequality are generally associated with changes in homicide, robbery, and burglary rates (expectation 2). In general, an increase in any of these dimensions of economic deprivation results in higher rates of crime. Thus, a product of deteriorating economic conditions within a city is the proliferation of criminal offending.

A third conclusion from this research can be derived from the first two conclusions presented above. That is, a decrease in the manufacturing base of cities indirectly increases rates of homicide, robbery and burglary, by first increasing poverty,

joblessness and inequality. Therefore, the structural transformation of the U.S. economy occurring during the previous three decades has resulted in negative outcomes in terms of crime rates in major cities. In these locations, the loss of manufacturing, relative to service employment has resulted in an increase of homicide, robbery, and burglary offending.

The fourth conclusion is that the negative economic consequences of the industrial transition are not racially selective. Despite expectations to the contrary, the effect of the industrial transition is pervasive and has raised economic deprivation similarly for black and white center-city communities. Thus, the argument put forth by Kasarda (1985) and Wilson (1987) suggesting that black city residents have suffered disproportionally from structural economic changes gains little support from the findings in this study.

The fifth conclusion is that the shift from manufacturing to services employment within cities has had similar effects on rates of crime in black and white communities. My analysis reveals nearly identical indirect associations between the relative size of the manufacturing ratio and crime rates for blacks and whites.

However, while the results from my mulitvariate analyses do not reveal the expected race differences in the impact of economic restructuring on economic deprivation and crime rates, this does not mean that overall levels of economic hardship and criminal offending are similar in black and white communities. They clearly are not. It simply indicates that the rate of change in these outcomes due to industrial restructuring is similar for both groups. But, my analysis of univariate statistics clearly

indicates that the absolute rates of economic dislocation and criminal activity are sharply higher in black communities than they are in white communities.

A final conclusion from my research is that the industrial structure and the measures of economic hardship have relatively robust and consistent effects on all three types of crime. This conclusion is somewhat in opposition to what one would expect if a pure economic motivation perspective was applied in the current research. From this perspective, economically deprived individuals are compelled to commit crime because of economic motivation. And the pursuit of economic gain is the ultimate objective, resulting in higher property offending. But, the social organization/social control perspective that I adopt in this study avoids making suppositions about offenders motivation. Rather, it assumes that all types of crime will be affected by rising economic dislocation because of the attenuation of community social control, an assumption which is clearly supported by my findings.

The current research is among the first studies to investigate the theoretical and empirical connection between economic restructuring, economic deprivation and crime. Therefore, there is much left to be explored in future research. While this project improves upon previous work by extending the analysis to several different types of criminal activity, and by further specifying the importance of specific low-skill industrial sectors (i.e. manufacturing), it leaves several areas open for additional research.

Future research should investigate regional differences in the impact of the industrial transition. As I have noted in this project, the northeast and midwest cities

have undergone the most drastic industrial transition as they have gone from major centers of goods-production to centers of finance, high-tech communications, and other producer services. My own preliminary analyses of regional variation suggests that the effects of industrial change are most pronounced in these regions, although all regions appear to have experienced some economic restructuring and concomitant social and economic consequences from economic restructuring. Given these preliminary findings, it is important that future studies explore regional differences in the relationship between urban economic restructuring and crime.

Another avenue for additional research is the investigation of the impact of the restructuring process on crime in non-metropolitan locations. As I have shown in this study, large cities have lost substantial employment in manufacturing industries which has resulted in deleterious consequences for these localities. But, many non-metropolitan areas of the country have attracted manufacturing industries because of cheaper labor and land costs. This is particularly the case in rural areas of the southern region of the United States. Whether or not the increase of manufacturing employment in these locations has improved the economic situation and reduced the rate of criminal offending is an intriguing empirical question that needs to be addressed in future studies. Based upon my findings, I would expect that gaining manufacturing employment would improve life in these locations. However, because rural and urban areas differ in many ways, the important structural predictors of crime in urban locations may be of less importance in rural localities. Researchers who decide to pursue this question must beware of the quality of UCR data for non-metropolitan or

rural areas. Indeed, many of the reporting and recording problems that plague official crime data are amplified in geographic units where police procedures are less standardized than is typical in major cities of the United States. Despite this problem, investigation of this issue is needed to fill a gap in the sociological knowledge base.

Future research should also explore gender differences in the impact of economic restructuring on crime. Criminologists have recently become increasingly interested in investigating race differences in crime, often at the expense of gender-crime research. However, since women and men historically are differentially distributed in industrial sectors, there are reasons to believe that different gender outcomes may result from change in a city's industrial structure. For example, women typically have been disproportionally distributed in the service sector, while men have dominated heavy industrial sectors. Thus, as heavy industry has contracted or moved, men rather than women have tended to be displaced. Moreover, how has the overall increase of women in the labor force altered the economic prospects for men? Are these industrial/labor force changes related to patterns of serious criminal offending? These questions are important issues for future research projects to address.

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APPENDICES

Appendix A.1: Correlation Matrix of Variables in Black Cross-Sectional Analysis.

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15
X1	1.0														
X2	.75*	1.0													
X3	.83*	.82*	1.0												
X4	.43*	.48*	.51*	1.0											
X5	-.06	.04	-.10	-.24*	1.0										
X6	.61*	.52*	.53*	.44*	.07	1.0									
X7	-.10	-.26*	-.21*	-.14	.14	-.06	1.0								
X8	.20*	.35*	.30*	.49*	.02	.46*	.03	1.0							
X9	-.18	-.20*	-.11	-.06	-.002	.04	.09	-.23*	1.0						
X10	-.08	.11	.05	.15	-.03	-.11	-.19*	.02	-.06	1.0					
X11	.10	.13	.09	-.002	.10	.05	-.04	-.01	.19*	-.08	1.0				
X12	.16	.29*	.27*	-.08	.44*	.27*	.04	.13	.27*	-.02	.21*	1.0			
X13	.21*	.35*	.27*	.22*	-.04	.13	-.11	.28*	-.05	.22*	-.11	.01	1.0		
X14	-.04	.09	.004	.06	-.06	.003	-.22*	-.26*	.45*	.18	.10	-.01	.27*	1.0	
X15	.01	.04	.01	.04	-.13	.05	-.03	-.30*	.25*	-.03	-.01	-.25*	.25*	.69*	1.0

* $p < .05$

X1=Black Poverty ; X2=Black Joblessness ; X3=Black Inequality ; X4=Total Inequality ; X5=Manufacturing Ratio ; X6=Low-Skill Blacks ; X7 =Black Youth ; X8=Percentage Black ; X9=Black Renters, X10=Population Size ; X11=Population Density ; X12=Rustbelt ; X13=Black Homicide ; X14=Black Robbery , X15=Black Burglary

Appendix A.2: Correlation Matrix of Variables in White Cross-Sectional Analysis.

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15
X1	1.0														
X2	.72*	1.0													
X3	.24*	.26*	1.0												
X4	.30*	.35*	.83*	1.0											
X5	.17	.26*	-.35*	-.24*	1.0										
X6	.67*	.69*	-.01	.11	.53*	1.0									
X7	.31*	-.03	-.02	-.03	-.09	-.02	1.0								
X8	.03	.33*	.32*	.49*	.02	.22*	-.09	1.0							
X9	.30*	.01	.24*	.12	-.09	.26*	.32*	-.04	1.0						
X10	.05	-.06	.17	.15	-.03	.05	-.11	.02	.11	1.0					
X11	.16	.18	.002	-.002	.10	.14	.02	-.01	.15	-.08	1.0				
X12	.32*	.45*	-.14	-.08	.44*	.49*	.10	.13	.21*	-.02	.21*	1.0			
X13	.37*	.36*	.17	.18	.11	.36*	-.17	.22*	.09	.36*	-.07	.06	1.0		
X14	.40*	.30*	.19*	.15	.12	.55*	-.10	-.01	.56*	.27*	.05	.14	.51*	1.0	
X15	.28*	.19*	.11	.05	.04	.29*	-.06	-.19*	.26*	.11	-.01	-.12	.44*	.73*	1.0

* $p < .05$

X1=White Poverty ; X2=White Joblessness ; X3=White Inequality ; X4=Total Inequality ; X5=Manufacturing Ratio ; X6=Low-Skill Whites ; X7 =White Youth ; X8=Percentage Black , X9=White Renters, X10=Population Size ; X11=Population Density ; X12=Rustbelt ; X13=White Homicide ; X14=White Robbery ; X15=White Burglary

Appendix A.3: Correlation Matrix of Variables in Black Longitudinal Analysis.

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14
X1	1.0													
X2	.74*	1.0												
X3	.50*	.53*	1.0											
X4	-.56*	-.45*	-.39*	1.0										
X5	.48*	.45*	.37*	-.17	1.0									
X6	-.03	-.03	-.04	-.15	-.09	1.0								
X7	-.16	-.29*	-.23*	.48*	-.24*	-.23*	1.0							
X8	.25*	.22*	.40*	-.47*	-.11	.08	-.35*	1.0						
X9	-.43*	-.44*	-.32*	.45*	-.20*	-.03	.44*	-.47*	1.0					
X10	.12	-.04	.02	-.13	-.10	-.04	-.09	.05	-.01	1.0				
X11	.57*	.37*	.30*	-.75*	.17	.27*	-.50*	.33*	-.43*	.11	1.0			
X12	.24*	.18	.10	-.13	.06	-.01	-.12	.28*	-.22*	-.09	.11	1.0		
X13	.02	.22*	.09	.02	.06	.13	-.10	.05	-.03	-.08	-.01	.16	1.0	
X14	-.09	-.01	.01	.05	-.17	.04	.05	.12	-.06	-.01	-.10	.03	.50*	1.0

* $p < .05$

X1=Δ Black Poverty ; X2=Δ Black Joblessness ; X3=Δ Total Inequality ; X4=Δ Manufacturing Ratio ; X5=Δ Low-Skill Blacks ; X6=Δ Black Youth ; X7=Δ Black Renters ; X8=Δ Percent Black ; X9=Δ City Population ; X10=Δ Population Density ; X11=Rustbelt ; X12=Δ Black Homicide ; X13=Δ Black Robbery ; X14=Δ Black Burglary.

Appendix A.4: Correlation Matrix of Variables in White Longitudinal Analysis.

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14
X1	1.0													
X2	.60*	1.0												
X3	.42*	.53*	1.0											
X4	-.48*	-.67*	-.39*	1.0										
X5	.20*	-.01	-.08	.22*	1.0									
X6	.35*	.36*	.11	-.20*	.05	1.0								
X7	.03	-.19*	-.18	.36*	.13	.07	1.0							
X8	.32*	.49*	.40*	-.47*	-.17	.02	-.18	1.0						
X9	-.10	-.40*	-.32*	.45*	.26*	-.12	.36*	-.47*	1.0					
X10	.06	.03	.02	-.13	-.06	.05	-.07	.05	-.01	1.0				
X11	.39*	.53*	.30*	-.75*	-.17	.37*	-.38*	.33*	-.43*	.11	1.0			
X12	.40*	.25*	.12	-.15	.19*	.06	-.04	.26*	-.15	-.09	.15	1.0		
X13	.35*	.28*	.21*	-.18	.23*	.31*	-.24*	.01	.02	-.06	.25*	.43*	1.0	
X14	.25*	.17	.07	-.09	.19*	.14	-.10	.03	.03	.04	.12	.34*	.63*	1.0

* $p < .05$

X1=Δ White Poverty ; X2=Δ White Joblessness ; X3=Δ Total Inequality ; X4=Δ Manufacturing Ratio ; X5=Δ Low-Skill Whites ; X6=Δ White Youth ; X7=Δ White Renters ; X8=Δ Percent Black ; X9=Δ City Population ; X10=Δ Population Density ; X11=Rustbelt ; X12=Δ White Homicide ; X13=Δ White Robbery ; X14=Δ White Burglary.

Appendix B.1: Estimates from Conditional Differences Equation Predicting Change in Black Homicide

	b	B	s.e.
Black Joblessness 1990	.038	.44	.009*
Manufacturing Ratio 1990	.319	.06	.451
Low-skill Blacks 1990	-.010	-.14	.008
Percent Blacks Aged 15-24 1990	-.003	-.01	.025
Percentage Black 1990	.008	.24	.003*
Percent Black Renters 1990	.017	.24	.007*
City Population 1990	-.006	-.01	.079
Population Density 1990	-.113	-.22	.055*
Rustbelt	-.172	-.14	.124
Black Homicide Rate 1970	-.760	-.54	.118*
Constant	1.06		
R^2	.414		

* $p < .05$

Appendix B.2: Estimates of Residual-Score Equation Predicting Residual Change in Black Homicide

	b	B	s.e.
Δ Black Joblessness	.020	.25	.009*
Δ Manufacturing Ratio	-.183	-.06	.485
Δ Low-skill Blacks	.002	.02	.010
Δ Percent Blacks Aged 15-24	-.008	-.03	.028
Δ Percentage Black	.017	.20	.009+
Δ Percent Black Renters	.003	.05	.006
Δ City Population	3.94^{-7}	-.11	3.90^{-7}
Δ Population Density 1990	-.120	-.23	.048*
Rustbelt	-.232	-.21	.157
Constant	-.046		
R^2	.224		

* $p < .05$; + $p < .10$

Appendix B.3: Estimates from Conditional Differences Equation Predicting Change in White Homicide

	b	B	s.e.
White Joblessness 1990	.042	.41	.016*
Manufacturing Ratio 1990	1.16	.23	.645+
Low-skill Whites 1990	-.026	-.41	.011*
Percent Whites Aged 15-24 1990	-.004	-.02	.019
Percentage Black 1990	.009	.26	.003*
Percent White Renters 1990	.012	.17	.008
City Population 1990	-.009	-.01	.092
Population Density 1990	-.092	-.18	.064
Rustbelt	-.027	-.02	.160
White Homicide Rate 1970	-.128	-.14	.103
Constant	-1.10		
R^2	.152		

* $p < .05$; + $p < .10$

Appendix B.4: Estimates of Residual-Score Equation Predicting Residual Change in White Homicide

	b	B	s.e.
Δ White Joblessness	.042	.32	.018*
Δ Manufacturing Ratio	-.225	-.06	.662
Δ Low-skill Whites	.014	.12	.011
Δ Percent Whites Aged 15-24	.012	.04	.030
Δ Percentage Black	.009	.08	.011
Δ Percent White Renters	-.004	-.05	.008
Δ City Population	5.71^{-7}	.13	4.80^{-7}
Δ Population Density 1990	-.193	-.30	.059*
Rustbelt	-.139	-.10	.203
Constant	.467		
R^2	.218		

* $p < .05$

Appendix B.5: Estimates of Residual-Score Equation Predicting Residual Change in Black Robbery

	b	B	s.e.
Δ Black Poverty	.019	.36	.008*
Δ Manufacturing Ratio	.625	.23	.436
Δ Low-skill Blacks	-.003	-.03	.010
Δ Percent Blacks Aged 15-24	.024	.09	.026
Δ Percentage Black	-.002	-.03	.009
Δ Percent Black Renters	-.010	-.23	.006
Δ City Population	1.62^{-7}	.06	3.50^{-7}
Δ Population Density 1990	-.014	-.03	.043
Rustbelt	-.188	-.20	.153
Constant	.090		
R^2	.095		

* $p < .05$; + $p < .10$

Appendix B.6: Estimates from Conditional Differences Equation Predicting Change in White Robbery

	b	B	s.e.
White Poverty 1990	.034	.24	.015*
Manufacturing Ratio 1990	.051	.01	.470
Low-skill Whites 1990	.020	.31	.008*
Percent Whites Aged 15-24 1990	-.056	-.29	.016*
Percentage Black 1990	-.003	-.08	.003
Percent White Renters 1990	.028	.41	.006
City Population 1990	.091	.11	.070
Population Density 1990	.036	.07	.047
Rustbelt	-.104	-.08	.106
White Robbery Rate 1970	-.625	-.65	.076*
Constant	-.010		
R^2	.549		

* $p < .05$

Appendix B.7: Estimates of Residual-Score Equation Predicting Residual Change in White Robbery

	b	B	s.e.
Δ White Poverty	.043	.26	.020*
Δ Manufacturing Ratio	.292	.08	.558
Δ Low-skill Whites	.007	.07	.010
Δ Percent Whites Aged 15-24	.057	.23	.026*
Δ Percentage Black	.005	.06	.010
Δ Percent White Renters	-.014	-.21	.007*
Δ City Population	3.84^{-7}	.10	4.20^{-7}
Δ Population Density 1990	-.007	-.01	.053
Rustbelt	.078	.06	.179
Constant	.417		
R^2	.201		

* $p < .05$

Appendix B.8: Estimates from Conditional Differences Equation Predicting Change in White Robbery

	b	B	s.e.
White Joblessness 1990	.040	.38	.011*
Manufacturing Ratio 1990	.318	.06	.461
Low-skill Whites 1990	.014	.22	.008+
Percent Whites Aged 15-24 1990	-.045	-.23	.014*
Percentage Black 1990	-.005	-.16	.002*
Percent White Renters 1990	.035	.52	.006*
City Population 1990	.131	.16	.067+
Population Density 1990	.018	.03	.046
Rustbelt	-.199	-.16	.106+
White Robbery Rate 1970	-.649	-.67	.074*
Constant	-1.77		
R^2	.581		

* $p < .05$; + $p < .10$

Appendix B.9: Estimates from Residual-Score Equation Predicting Residual Change in Black Burglary

	b	B	s.e.
Δ Black Poverty	.017	.35	.007*
Δ Manufacturing Ratio	.695	.27	.394+
Δ Low-skill Blacks	-.008	-.11	.009
Δ Percent Blacks Aged 15-24	.034	.14	.023
Δ Percentage Black	-.007	-.11	.008
Δ Percent Black Renters	-.006	-.16	.005
Δ City Population	-1.44^{-7}	-.05	3.20^{-7}
Δ Population Density	.048	.12	.039
Rustbelt	-.278	-.32	.138*
Constant	.026		
R^2	.154		

* $p < .05$; + $p < .10$

Appendix B.10: Estimates from Conditional Differences Equation Predicting Change in White Burglary

	b	B	s.e.
White Joblessness 1990	.032	.37	.011*
Manufacturing Ratio 1990	.415	.10	.475
Low-skill Whites 1990	.008	.14	.008
Percent Whites Aged 15-24 1990	-.012	-.08	.014
Percentage Black 1990	-.006	-.21	.003*
Percent White Renters 1990	.014	.25	.006*
City Population 1990	.095	.14	.066
Population Density 1990	.043	.10	.047
Rustbelt	-.279	-.27	.114*
White Burglary Rate 1970	-.433	-.40	.098*
Constant	-.940		
R^2	.351		

* $p < .05$; + $p < .10$

VITA

Graham C. Ousey was born on April 20, 1968 in Yokosuka, Japan. He graduated from Hopewell High School in Hopewell, Virginia, in 1986. He began his college career at Richard Bland College in August of 1986. In August of 1988 he transferred to Radford University in Radford, Virginia. In May 1991 he received a Bachelor of Science in Sociology and Anthropology from Radford University. In August 1993 he received a Master of Arts degree in Sociology from the College of William and Mary, in Williamsburg, Virginia. Presently, he is a candidate for the degree of Doctor of Philosophy in the Department of Sociology at Louisiana State University.

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Graham C. Ousey

Major Field: Sociology

Title of Dissertation: The Link Between Economic Restructuring, Economic Deprivation, and Serious Crime in American Cities, 1970-1990

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

March 21, 1997